

THE FAR EASTERN

REVIEW

FOUNDED BY GEORGE BRONSON REA
35TH YEAR OF PUBLICATION



上海黃浦灘
第四號

遠東
時報

WILL THE U.S. GO TO WAR?
AMERICAN POLICIES UNDER FIRE
CHINA AT THE CROSS-ROADS

Vol. XXXV

OCTOBER 1939

No. 10

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The Far Eastern Review

ENGINEERING

FINANCE

COMMERCE

VOL. XXXV

SHANGHAI, OCTOBER, 1939

No. 10

FAR EASTERN CROSS-CURRENTS

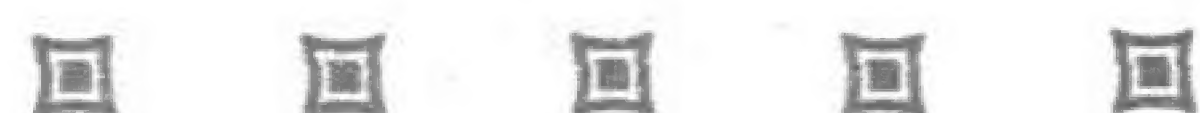
The dispatch of a large number of American warships to Hawaii and the concentration of naval patrol planes and a seaplane tender at Manila were merely routine matters and certainly did not constitute steps against Japan, Mr. Francis B. Sayre, United States High Commissioner for the Philippines, told Japanese newspapermen in Tokyo.

The newly appointed High Commissioner received Japanese newspapermen in a special interview at the American Embassy in Tokyo after a luncheon with Mr. Joseph Grew, United States Ambassador to Japan, who also entertained Sr. Sergio Osmena, Vice-President of the Philippines.

Mr. Sayre said that the recent American moves were part of the regular naval manoeuvres. Asked if that reinforcement had any connection with the war in Europe, Mr. Sayre reiterated his earlier explanation, the Japanese press said.

Mr. Sayre said that he believed relations between Japan and the Philippines are normal and good when he was asked whether there was any anti-Japanese movement or feeling in the southern archipelago.

The High Commissioner, the Japanese press further reported, said that he would make every effort to promote commercial relations between Japan and the Philippines.



To decide once and for all whether the United States should participate in the European war, or whether she should stay out of it true to American tradition, President Roosevelt called Congress to a special session on September 21. On October 2 the Senate opened a series of debates, in which *pro et con* as to the attitude of the United States have since been argued.

President Roosevelt convoked a special congressional session primarily to alter drastically the existing Neutrality Law, which prohibits the United States from exporting arms to belligerents. The President wants to apply the "cash-and-carry" clause to the arms exports which would benefit Britain and France.

Below are the principal changes The President is reported to be desiring in the existing neutrality law :

- (1) To designate a war zone and prohibit American vessels from entering such a zone.
- (2) To prohibit American citizens from traveling aboard belligerents' vessels.
- (3) Belligerent nations, when purchasing commodities from the United States, shall acquire full title to the goods before the clearance of carriers.
- (4) Long term credit shall not be granted to belligerent nations.

The motives believed to have prompted President Roosevelt to desire such changes, are :

- (a) America does not want to be dragged into foreign entanglements.
- (b) In order to prevent the United States from being involved in foreign entanglements, the United States is even prepared to forsake the "freedom of the seas," the fundamental principle in international law.
- (c) At the same time there is no reason why America should not do business with belligerents, where such transactions are profitable to America.
- (d) The United States might as well renew the "cash-and-carry" clause, which expired in May this year, so as to help Britain and France, to whom the American sentiments

are overwhelmingly sympathetic, and because Britain and France, having more ships and money than the axis states, will become decidedly beneficiaries.

- (e) From the bitter experience of more than \$10-billion of frozen credits to Europe during the World War of 1914-18, America does not wish to extend long term credit to belligerents.

No sooner had Britain and France declared war on Germany than bonds and stocks soared high, indicating the American desire to get in another war boom.

The President, in his message to Congress on September 21, declared something to this effect :

"It is ridiculous to block exports to belligerents. The United States by encouraging exports to belligerents not only can decrease unemployment but can bring prosperity to munitions industries."

Superficially, the proposed revision of the neutrality law does not take Japan into consideration, but in the event the revision bill becomes a law it will bear vitally on Japanese-American relations.

Supposing that the United States presumed Japan a belligerent under the existing law, arms and munitions exports to Japan would cease entirely.

In case the revision is enacted, however, Japan may obtain arms and munitions as long as Japan can send cash and her own vessels. In this respect, the proposed revision may be said to be more beneficial to Japan than the existing act.

Supposing the President of the United States should designate the Far East as the danger zone in accordance with the revised neutrality law, America's vested rights and interests there would be greatly menaced, since American vessels would be barred from the war zone, as the bill reported on September 25 as the U.S. government plan proposes to prohibit American vessels from entering the war zone, punishable with heavy penalty.

If the neutrality law, in its revised form, is applied to the Far East, American vessels and American citizens will be ordered out of the danger zone.

If the United States does not like it, she will have to refrain from applying the revised neutrality law to the Far East.

With reference to the proposed prohibition of the long term credit, it would not materially affect the Japan trade, except that such would adversely affect the American-Japanese relations. Rather the United States would have to take into account the possibility of discontinuance of long term credit to Chiang Kai-shek.

As has been mentioned before, America's first and last concern in connection with the proposed revision of the neutrality law is to gain prosperity at the expense of belligerents.

Key Pittman, chairman of the Senate foreign relations committee, advocated the repeal of the Johnson act, and to allow long term credits to Britain and France to increase trade volume with belligerents.

Japan is the best customer for American raw cotton and scrap steel. In 1938 Japan imported from America raw cotton valued at \$52-million and scrap steel valued at \$22-million. During the first five months of 1939 Japan imported from America motor-cars, fuel oils, machines, etc., valued at \$45-million.

Since the United States notified Japan of her intention to abrogate the Treaty of Commerce and Navigation with Japan dated 1911, the problem of Japan trade has remained unsolved. The fact that the United States has taken the initiative in stimulating overseas trade is worthy of note.

Mr. Joseph C. Grew, American Ambassador to Japan, returned to Tokyo on October 10, with Mrs. Grew, after a five month vacation in the United States.

Commenting on Mr. Grew's return, the *Japan Advertiser*, American-owned and managed daily, declared editorially that the envoy's furlough was a well-earned rest for "it followed a long stretch of not the most pleasant of ambassadorial duties, the making of representations and protests regarding incidents and situations arising out of the hostilities in China."

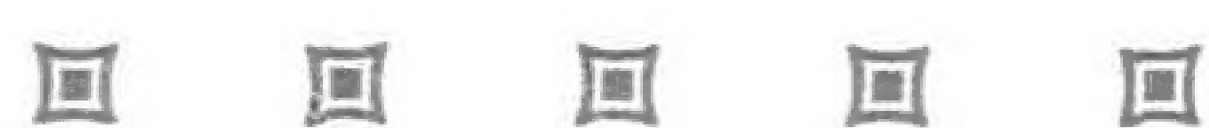
"Equally arduous work awaits him," the newspaper said, remarking that while representations and protests seem to be fewer and farther between, there is an accumulation of past ones that require disposal.

"Closely linked with this accumulation," the *Advertiser* said, "is the problem of what to do with the expiration in January of the basic Japanese-American treaty of Commerce and Navigation. Above these specific issues, too bulky to keep out of sight for very long, there is the general one of how to adjust Japanese-American differences regarding China or, at least, of how to prevent them from corroding further the relations between the two countries."

"The ambassador comes fresh from consultations with officials in Washington and, equally important, from contact with American public opinion."

"Here he will have to acquaint himself with changes that have occurred during his absence, there is a new cabinet with a Foreign Minister who has announced that he will make redoubled efforts in a more concrete manner to enlighten the United States."

"There is a change in the diplomatic outlook, caused by the Soviet-German rapprochement and the European War. There is a new confidence that the solution of the China Incident is nearer," the *Japan Advertiser* declared.



The controversy over the creation of a new Trade Ministry by the Japanese Government which was climaxed when 110 Foreign Office Officials resigned, was amicably settled when Foreign Office staff members accepted the compromise plan submitted by the Government, Japanese sources said to-day.

The formula of settlement was left to the discretion of the Premier, Gen. Nobuyuki Abe, and the Foreign Minister, Admiral Ki. Nomura at a cabinet meeting and they ruled the right of appointment, dismissal and control of commercial attachés would be retained by the Foreign Minister, it was said. The plan which met with so much opposition from Foreign Office officials invested the right of dismissal and control of commercial attachés in a proposed new Trade Ministry.

Admiral Nomura, called all staff members of the Foreign Office to a meeting and turned down their resignations, Japanese reports said.

Gen. Nobuyuki Abe, Prime Minister, had been entrusted by his Cabinet with full powers to deal with the mass resignations.

This followed a request by the Prime Minister, at a Cabinet meeting, to be allowed to handle the matter in his own way, in consultation with Admiral Nomura, the Foreign Minister.

The authority granted the Premier by his Cabinet included that to revise the plans for the projected ministry approved by the ministers at their meeting on October 3.

The revisions, Premier Abe indicated, would remove all provisions for a dual control of Japanese Consular and Diplomatic officials abroad by the Foreign Office and the projected Ministry of Trade.

The dispute has revolved round this issue, the Foreign Office staff contending that they would be unable to serve with responsibility under a system of dual control. The Ministers were understood to have agreed that extensive revisions in the Cabinet's 10-day-old plan would have to be carried out so as to pacify the embattled diplomatic officials.

The unique controversy between Admiral Kichisaburo Nomura, Foreign Minister, and the staff of the Foreign Ministry culminated in the resignation of Mr. Masayuki Tani, vice-minister of Foreign Affairs. Mr. Tani, who formerly was Minister at large in Shanghai, tendered his resignation assuming the responsibility for similar action taken by Gaimusho officials at home and abroad on the contention that the Government's plan for the Trade Ministry infringed upon the prerogatives of the Foreign Office as the sole agency for the conduct of Japan's diplomacy.

France recently sent China a clear indication that it would be advisable for China to conclude peace with Japan and negotiate with Mr. Wang Ching-wei, former member of the Kuomintang, under best possible terms, reliable French sources here reported on October 10.

The report aroused speculation whether Great Britain shares the reported French view, because of the close coincidence of English and French policies in the Orient.

It was understood, however, that Viscount Halifax, British Foreign Minister, has repeatedly assured the Chinese Ambassador to the Court of St. James's, Dr. Quo Tai-chi, that the British policy in China would remain unchanged.

The recent report that five British gunboats had been removed from the Yangtze created the erroneous impression that the removal was symbolic of British withdrawal from China. The error, however, lay in ignorance of the fact that the British gunboats were said to be remaining in East Asiatic waters.

It was assumed that the author of the French advice to China had been swayed by the consideration of Europe's preoccupation which would prevent further European economic and financial aid, or any other effective help to China.

In a statement addressed to the Chinese people from Chungking on the eve of the Double Tenth, Gen. Chiang Kai-shek warned the Chinese people against hoping for a speedy conclusion of the Sino-Japanese war. He urged civilians to co-operate with the armed forces.

General Chiang also insisted on wiping out all traitors, whom he described as "tools of the enemy's political offensive."

At the same time, the National Government issued a proclamation declaring that no enactments and agreements of "puppet governments" would ever be recognized.

Gen. Chen Cheng, Director of the Political Department of the National Military Council, urged the nation to prepare for "a general counter-offensive on all fronts."

The Japanese Foreign Office at Tokyo announced that they had not been informed of reported French efforts to launch Sino-Japanese mediation through Mr. Wang Ching-wei, expelled former member of the Kuomintang.

The Japanese Foreign Office refused to comment until more exact information could be obtained.



The inventor of a diving bell approved for examination by the United States Naval authorities, and similar in construction to the one used in the rescue of the crew of the American submarine *Squalus*, is in Hongkong.

He is Mr. P. L. L. Biau, a well-known architect with offices both in Hongkong and Fort Bayard, who wishes to have his apparatus tested by the British Admiralty.

While admitting that his diving bell would have been ineffective in the case of the *Thetis*, owing to the steepness of the angle at which she was embedded in the sea floor, Mr. Biau stated that he was very surprised at the recent admission by the British and French Admiralties that they had no apparatus of this type. Though he has previously offered his invention, without success, to both France and Britain, Mr. Biau feels that every possible precaution for safeguarding men engaged in such perilous work as manning submarines should be investigated.

To this effect, he has again submitted details of the invention to the British Admiralty through the Hongkong Naval authorities.

Mr. Biau said he had invented his diving bell with the assistance of a colleague, Mr. R. C. Hill, and produced official correspondence between himself and Submarine Division XVII of the United States Navy. The correspondence shows that this system was approved for examination several years ago, but that, as another diving bell had been invented by the American Naval authorities themselves, Mr. Biau's invention was never tested.

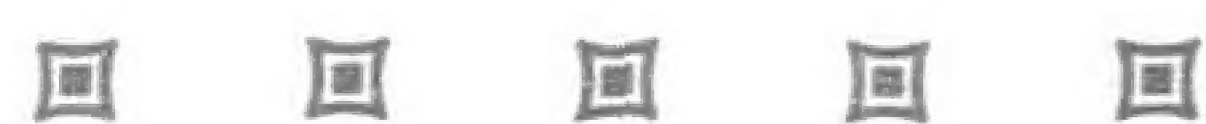
"I am absolutely confident of the efficiency of my diving bell and I am very anxious to demonstrate its efficacy as soon as possible," he told Reuter.

Details of the Biau-Hill diving bell are contained in a publication issued by the Biau-Hill Submarine Salvage Company. The system has been patented throughout the world.

The projected railway line from Tokyo to Shimonoseki, which the Railway Ministry is planning to construct to meet the increasing traffic to the Continent as a result of the East Asia construction program, will require 10 years to construct at a cost of ¥500,000,000.

The Ministry is said to have decided to use a narrow gauge double-track line for the time being, but it will be so constructed as to permit its extension to the wider standard gauge, which was expected to be used at first. Officials also have decided to construct the line over the shortest possible route between the two cities. The new railway, therefore will not run parallel to the Tokaido or the Sanyo lines, according to the *Chugai Shogyo*.

Stations on the double-track line will be constructed only at the principal points between the two chief terminals and they will be limited in number to increase the speed of the trip across the country. The prospective areas to be covered by the new trunk line will be surveyed during this year, the officials have decided.



Openly advocating for the first time the overthrow of China's "aspirant dictator," Gen. Chiang Kai-shek, Mr. Wang Ching-wei, leader of the "Orthodox" Kuomintang, yesterday bitterly assailed the suppression of free speech in areas under the control of the Chungking Government.

Gen. Chiang was said by Mr. Wang to lack "even the minimum moral and ethical qualifications of the normal human being."

In his statement entitled "A New Life for the Chinese Republic," issued on the eve of the Double Tenth anniversary, Mr. Wang declared that Chinese people in the rear "are forced to burn firecrackers to celebrate victories which only exist in the newspapers while at the front they serve as cannon fodder."

Mr. Wang's advocacy of an early adoption of a constitutional Government was supported by Dr. Kiang Kang-hu, founder and leader of the Social Democratic Party of China, who in a declaration on behalf of the party declared his adherence, with his followers, to the cause of peace and the peaceful salvation of the country.—Domei.



The new war in Europe, no matter from which direction it is viewed, is bound to have an adverse effect on the heavy industries of Japan, according to the *Nikkan Kogyo*, Tokyo industrial newspaper.

Even if the present scrap iron, ore and pig iron markets remain accessible to Japan, which is the extremely optimistic view, an immediate difficulty will be encountered in the inadequacy of Japanese-owned ships to carry those products, since the commercial shipping of the belligerents will be tied up or devoted to their own use.

There also is the prospect that America will declare an embargo on such shipments to Japan, and that British dependencies will close their markets to this country.

The immediate upshot is expected to be the establishment of state control over the ferrous metal industries to a degree far more stringent than that now in effect.

Among other prospective measures will be the enforced suspension of various open hearth blast furnaces and rolling mills, greater reclamation of scrap iron in Japan, greater restriction of scrap iron in Japan, greater restrictions on the manufacture of non-essential goods requiring the use of metals, and greater exploitation of ore resources under the direct control of Japan.

It also is expected that iron mills remaining in operation will be re-equipped, for efficiency's sake, to carry through complete operations, starting with pig iron production and ending with the manufacture of finished steel products.

The Commerce and Industry Ministry points out that the effect of the European war on Japanese iron and steel industries will depend to a great extent on the moves of America and Britain, which at present are highly unpredictable.

There is a possibility, according to the newspaper, that Japan will gain sympathy from America, now that its ties with the Axis have been broken, and that American ore and scrap iron markets will remain open to Japan.

The Commerce and Industry Ministry and the Cabinet Planning Board are studying all the angles and are devising systems to fit any altered condition that may arise to interfere with the heavy industries of the nation, including arrangements to obtain more ore and scrap from neutral countries.

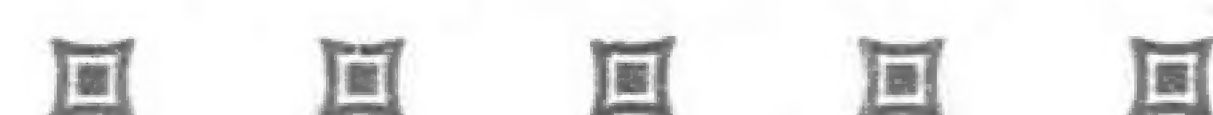
An important Anglo-Japanese announcement, involving certain British concessions to Japan in the Far East, is imminent, reliable quarters reported in London on October 13.

The recent meeting between the British Ambassador to Japan, Sir Robert Craigie, and the Japanese Foreign Minister, Admiral Nomura, was understood to have dealt with final details of the Anglo-Japanese announcement.

The exact nature of the British concessions to Japan has not been disclosed, but British circles reported that Britain has been discussing the matter with the United States Government in recent days.

Some circles believed the British concession would involve economic and policing matters in north China, possibly meeting Japan's demands in Tientsin.

Naval circles declined to comment on reports that an announcement was imminent and said they had no information indicating that the Admiralty intended to withdraw additional British warships from China waters. Most informed quarters believed Britain probably would not comply entirely with the Japanese request that all British armed forces be withdrawn from China.



Well-informed circles in Tokyo are of the opinion that the disrupted Anglo-Japanese conversations on the Tientsin issue may be resumed in the near future.

This view appears to be supported by the report that Mr. Sotomatsu Kato, Japanese Minister-at-Large to China, who returned to Tokyo recently was scheduled to hold an interview with Sir Robert Craigie, British Ambassador regarding the British Government's attitude toward resuming the parley, says Domei.

The Anglo-Japanese negotiations have been in abeyance since a stalemate was reached not long ago over economic issues, it is recalled. Following the outbreak of the European conflict, the British Government is said to have communicated to Tokyo a desire to resume the negotiations. The outbreak of the European hostilities and other important international developments are said to have been in the background of the British overtures to this country.

At the time the negotiations were suspended, the Hiranuma Government indicated its willingness to reopen the parley if the British side "seriously desired to reach a settlement."

This attitude is said to have been reaffirmed by the Abe Government and the military authorities in Tientsin following the Cabinet change recently.

It is now said that since the British Government has expressed an "earnest" desire to resume negotiations, there is no reason why the Japanese Government should not agree if Great Britain intends to co-operate with Japan in the construction of a new East Asia.



A Japanese whaling squadron, including six depot-ships and over 50 catcher boats with a crew of 200 fishermen left Osaka for the Antarctic on October 9.

It is not yet known whether any other countries will go whaling this season, but it is generally believed that the Japanese catch this season will be particularly good, owing to a lack of competition.

Before Japan's participation in the World Whaling Compact, Japanese ships left their home ports about the middle of September and engaged in whaling from November 1 to March 15. This year, however, the season is limited to a three-month period, namely from December 7 to March 8.

With Germany and Britain "doomed to keep back their excellent whaling ships," the European conflict gives Japan "a golden opportunity to lead all other countries in whaling in the Antarctic," the *Miyako Shimbun*, a popular daily, said. The newspaper listed Germany and Britain as Japan's two strong rivals.

The *Daiichi Tonan Maru*, the paper said, would lead the parade of Japanese whaling vessels to the Antarctic sailing from Japan. The whaling season, it added, would begin on December 8 to last for about three months as usual.

By October 29, the *Miyako Shimbun* continued, the Japanese whaling squadron comprising six whaling depot ships and more than 50 chaser boats with approximately 200 fishermen would have left Osaka for the Antarctic. Japan's competitors, the daily added, were still unknown as many European countries were now involved or affected by the conflict.

It is not yet possible, Reuter reports, to say how long Sir Archibald Kerr, the British Ambassador to China, will be able to stay in Chungking. His visit, however, will probably last at least one month. Sir Archibald arrived here two days ago, by air from Hongkong.

Mr. H. I. Prideaux-Brune, who is in charge of the British diplomatic mission here, is leaving for Kunming. During his absence, Mr. W. G. Hayter, the Second Secretary of the Embassy, will take his post.

Hope that the British Government would prove the repeated assurances that its "Far Eastern policy remains unchanged" by deeds, was expressed by the *China Times* in an editorial on British Far Eastern policy.

The Chinese newspaper expressed concern over reports that Great Britain was requesting resumption of the Anglo-Japanese Round Table Conference at Tokyo.

The *China Times* urged the British Government to reconsider its attitude in view of the following facts:

- (1) China will not abandon her resistance.
- (2) China will be able to win the war in the end; and
- (3) There can be no lasting peace in the world unless there is a free and independent China.—Reuter.



In connection with Japanese reports published here of the recent challenging of Japanese merchant vessels near Japanese waters by British warships, the following statement was made by the British Naval Attaché, Capt. F. D. N. C. Tufnell:—

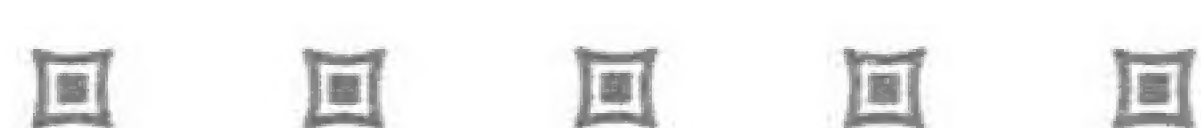
"This action, though it may seem strange to the Japanese, is not intended in any way against Japan. British ships near Japanese waters are only for carrying out ordinary patrol duty, which is being conducted all over the world.

"This is quite normal in time of war and the fact that a few Japanese merchantmen have been stopped is only to make sure that these ships are really Japanese and not German ships in disguise.

"The challenging of Japanese merchant vessels is not intended as a discourtesy against Japan, and it should not be looked on in this light.

"Our ships are near Japanese waters solely for patrol duty, to intercept any German ship that may be in these waters, either arriving or leaving Japan."

In commenting on the Japanese report that two Japanese ships were recently stopped by British warships, one off Wakayama, and the other near Nagasaki, the *Nichi Nichi* said, "Japan is at a loss to understand this behavior on the part of the British authorities."—Reuter.



An article under this title in the *Statist*, August 5, 1939, deals with the economic forces propelling Japan's policy.

"Unless we propose to continue indefinitely the series of crises through which we have been passing, some sort of decision will have to be arrived at between this country which possesses ample supplies of food and raw materials or access to those commodities and those countries which lack them. . . .

"In the negotiations now going on between Japan and ourselves this aspect of the question should be carefully borne in mind. . . ."

The article goes on to point out that Japan as an island is even less self-supporting than England, besides which she has a much larger population (Japan 73,000,000, United Kingdom 46,000,000) and the annual increase in Japan is six times ours.

Japan has tried in turn emigration, industrialization, and colonization.

"In each of the three courses which she proposed to adopt she met with a series of objections on the part of the statesmen and peoples of the various countries who believed their interests to be menaced by the action of Japan.

"Now the Japanese are exceedingly industrious, capable, and ingenious people, capable of living, and living relatively well, upon an economic basis considerably less expensive than that in which the colonies, or what are called the New Countries, are accustomed

to subsist. As a result the Japanese emigrant found that he did not receive a welcome in those colonies. . . ."

Japan then studied and adopted the factory system.

"Those who designed the Japanese factory system, therefore, realized that if it was worth while entering the market at all their only possibility of success was to aim at producing articles very much below the cost to which western nations had become accustomed.

"It is said that wages are much lower in Japan than in this country. It would be very difficult to prove the truth of this statement. The actual money wages of the operative is almost certainly less than that paid here, but that the Lancashire operative is better off than the textile worker in the great industrial centers of Japan is exceedingly doubtful. The organizers of the Japanese industry adopted what we might describe for convenience as a 'family plan'; that is to say, during the working period the operatives in the greater industries live in or around the factories, somewhat as a regiment lives in barracks, only, of course, both sexes are employed. During working periods the management is entirely responsible for the feeding, clothing, housing, medical attention, and amusements, including the installation of a cinema and swimming baths, while the operative gets short periods of leave—as we might say in this country, week-ends. The result of this system has produced goods at prices with which Lancashire cannot compete. . . ."

Japan was at once accused of unfair competition.

Japan has sought colonies in China and is also in process of developing Manchoukuo. She has developed her limited colonies to a greater extent in the past half-century than England has done in 200 years.

The article concludes by saying that Japan's statesmen find "it exceedingly difficult to discover what attitude they should adopt to feed their growing population and to maintain friendly relations with the rest of the world."



Victims of the drought in Korea have been allowed exemptions from the land taxes, exemption from payment of primary school tuition, and introduced to work in mines, in Manchoukuo and to public enterprises in Korea, it was announced by the Korean Government-General, reports Domei.

A ¥42,620,600 fund has been set aside for other public works projects and for the promotion of employment. According to plans already made, the work will be spread out with the daily sustenance cost fixed at 40 sen a person.

In addition, a committee organized by the Government-General has been going among the drought victims, encouraging the raising of substitute plants, and mediating in disputes between tenants and landlords caused by the dry spell.

While the 4,800,000 members of the Korean Spiritual Mobilization League are working to surmount the difficulties caused by the drought, another organization is reported conducting a drive to raise ¥1,000,000 within Korea for relief, and an additional ¥500,000 from the rest of the Japanese Empire.

According to figures released by the Government-General, in the four months between April and July, the rainfall was a little over a third of normal. By the end of July, 1,185,320 cho had been planted with rice, this being about 73 per cent of the normal acreage planted (One cho is 2.45 acres). The drought caused more than half of the rice plants to become stunted in growth. In the southern provinces, 693,419 cho of rice fields produced less than a third of their average yield.

Altogether, the rice crop this year in Korea is expected to total 13,999,242 koku, a decrease of 10,139,622 koku from last year's crop (One koku is about five bushels).

There is expected to be a 70 per cent fall in the dry field rice crop, a ten per cent decrease in the wheat crop, while the total production of cotton, soya beans and millet is also considered likely to be below past year averages.

It is estimated that about 1,091,000 families have been affected by the drought. Of this number, more than 770,000 families must be given relief, since they are unable to pull through the winter without aid. Since August a number of these families have been without enough food, the members eating the bran from various cereals.

The Soviet-German non-aggression pact, which brought the downfall of the Hiranuma Cabinet of Japan, may bring the Japanese closer to the United States, Mr. David Lawrence, ace political commentator, writes in the *New York Sun*.

"Japan's new policy is to cut loose from European power politics and to make friends where she can make it possible for the United States to hold forth its hand in sincere friendship and to ask Japan in all earnestness to return to the nine-Power treaty as a basis for a new setup. . . .

"Clearly there is an opportunity now to recognize Japan's sphere of influence in China, but this does not mean China's territorial integrity of Japan's economic opportunities therein need be impaired," he concluded.



From Cleveland, Ohio, Domei reports that a secret tribunal of rich merchants of Cleveland's Chinatown was brutally torturing Chinese residents there and in nearby cities for failure to contribute to the China war relief fund. This came to light when the local police made a raid on the headquarters of the On Leong Tong, a Chinese merchants' association.

In the raid, the police found bamboo whips three feet long and a half inch wide, which raiding officers said undoubtedly were used to beat Chinese workers and students who failed to contribute to the China war fund.

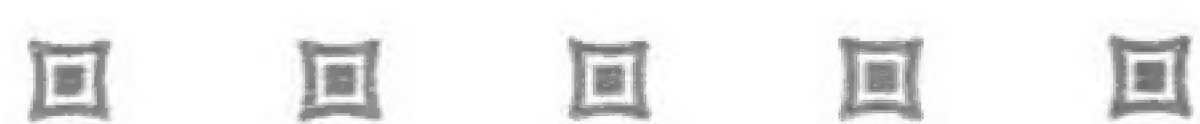
Police took action after Fong Kong, 40, graduate of the Case School of Applied Science, had stated to the police that he had been tortured and beaten before a secret "high tribunal" of the Consolidated Benevolent Association, because he could not make a \$12 payment to the fund.

Police investigation involved not only Fong Kong's case, but others more serious, including one in which Coroner Dr. Mike Gerber announced that the body of a Chinese cook, Wong Youn, was found yesterday with many welts, apparently severely flogged.

Sergeant Cooney, a detective, meanwhile announced that another Chinese cook has been missing in the Cleveland district since Friday.

The missing man is reported to have been flogged for eight hours after he had been compelled to march through the streets of Chinatown with a poster around his neck, branding him as a slacker because of his failure to contribute to the Chinese relief fund.

The disclosure has given rise to rumors that such practises are being carried on throughout the United States. Chinese residents thus far have been contributing heavily to the war relief fund, especially in the Chinatown districts in the Pacific Coast cities.



London, August 29.—In a lengthy editorial appearing in the *London Times*, after reviewing the events preceding the collapse of the Hiranuma Government of Japan, the writer particularly emphasized that Japan's relations with Great Britain in the future will be important, and that Japan's new Government will find on the British side "no surprises, no ambiguity and no double dealing."

Writing under the caption "The Resignation of the Japanese Cabinet," the *Times* declares, "Japan feels, and not without some justification, that she has been made a fool of."

"Some Japanese must have been alive to the possibility that Chancellor Adolf Hitler would let them down if it suited him, but nobody in Japan expected to be let down quite so suddenly."

"To be dropped, without warning overnight in favor of your principal enemy is not a congenial fate, and German Foreign Secretary Joachim von Ribbentrop's contemptuous allusion to Moscow to prospect even closer German-Japanese relations has served to underline the unpleasant truth that Japan has been treated not only scurvily, but as though it were a fifth-class Power."

This rankles, but apart from the affront to her pride, Japan has lost little and has learned a valuable lesson. It now is free to work out its own destinies.

"Japan's relations with Britain have a certain importance for Japan, and Japan's new Government will find on the British side no surprises, no ambiguity, no double dealing."

"The aims of British policy in the Far East remain what they have been since the war began. This country wishes to enjoy the same good relations with Japan that it enjoys with other countries on the Pacific, including China."

"Any improvement in Anglo-Japanese relations is a contribution to the cause of peace, and there is nothing in our Far Eastern policy, provided its simple but firm principles are studied by the Japanese, to prevent such an improvement from taking place."

Senator Key Pittman, chairman of the Senate Foreign Relations Committee, on August 6 issued a statement declaring that the restoration of United States and Japanese friendship is possible.

However, unless Japan changes her attitude concerning American rights in China, Congress will empower President Roosevelt to take retaliatory measures. He stressed that the United States does not intend to recognize Japan's claim of a new order in the Far East.

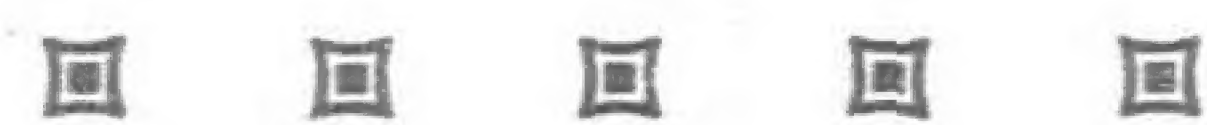
"We all hope," he added, "that Japan will be actuated by calmer reasoning and will respect the rights of our citizens as provided in various treaties."

Mr. Pittman did not mention what retaliatory steps Congress might authorize against Japan, but obviously referred to economic reprisals which could be instituted after the Japanese-American trade pact expires in January.

"The action of our government," he said, "with regard to the controversy with Japan relative to the protection of our citizens has been firm and consistent and indicates quite clearly that our government does not intend to recognize any new order in China."

"I am also confident unless the attitude of Japan changes materially for the better, Congress will enact legislation authorizing the president to take retaliatory measures."

After alluding to the treaties to which Japan and the United States are signatories, he said that he hoped "we can restore the high degree of friendship that has so long existed between our two countries."



To meet the great political and economic changes which are expected to develop throughout the world as a result of the widespread European conflict authorities of the Japanese Commerce and Industry Ministry are rushing plans for the speedy re-establishment of Japan's foreign trade position on a new basis, while the Foreign Ministry is reinvestigating Japan's commercial relations with other nations of the world, according to the *Yomiuri*.

Officials of the foreign trade bureau, the general affairs bureau and other branches of the Commerce and Industry Ministry, which has decided to embark on the great task of establishing a new foreign trade policy for Japan, held a conference and discussed means of adjusting export and import policies in accordance with radical changes in the economic position of Europe.

At first, officials of the Ministry plan to study how many new markets throughout the world can be secured for Japanese goods during the current European conflict, which is expected to limit severely the economic activities of most countries involved. According to the Ministry's opinion, the possible stoppage of shipments of European goods to the South Sea Islands, British India and Central America will give Japan a free hand in trading with these areas.

The export of cotton textiles, rayon goods, and other miscellaneous goods from Japan to these countries is now expected to increase by leaps and bounds.

Regarding the imports of raw materials during the war, the Ministry is said to attach prime importance to America's attitude toward Japan. If the political relations between Japan and America improves greatly and if the United States refrains from prohibiting the export of war materials to this country in the future, Japan's general materials mobilization program will not be affected seriously by the existence of war in Europe.

According to the *Yomiuri*, the Ministry is concentrating on the solution of the following questions:

(1) How to secure iron, copper, oil and special metals if America stops selling these goods to Japan as a result of the enforcement of its neutrality law. The journal says that the Ministry already has solved this question.

(2) How to import chemical goods, dye stuffs and machinery during the war, which is expected to terminate the Japan-Manchoukuo-Germany and Japan-Manchoukuo-Italy trade agreements.

(3) How to secure wool from Australia. There is every reason to believe that the import of wool to Japan from that country will be discontinued during the war.

The Ministry believes that Japan will be able to continue buying iron and nickel ore from the South Sea Islands and the Straits Settlement, for it is considered impossible that these areas would venture to lose the favor of Japan, which has been their best customer.

Will the U.S. Go to War?

The Menace of Involvement in Europe Lies Outside of the Country, the Danger of Conflict in the Pacific Lies Within

THE whole neutrality wrangle in the American Congress rests squarely on the purpose to keep the Nation out of war. The will of the American people on this subject is clear-cut, well understood, and practically unanimous. In the controversy between the President and the legislators no least difference of view has existed regarding the object to be attained. The dispute centers only upon how the popular will may be carried out—how the American people may be saved from the suffering and losses involved in active participation in war.

Possibilities of armed conflict confront the American Government in two widely separated regions—in Europe, and in the Far East. The menace in Europe is immediate, and is the more threatening; not a few qualified observers, in fact, hold the opinion that it will be impossible for the United States to keep out of the European struggle. The American hatred of dictatorial rule, as exemplified by Hitlerism, would flare into swift action on an angry tide of outraged public opinion if the Nazi regime, perhaps in a mad gesture of desperation, would make some ill-considered onslaught involving American lives and property, or American honor. Such an eventuality is within the realm of possibility, for it is clear that there is a degree of conscienceless insanity ordering the course of events to-day in Europe. In this way any form of American neutrality legislation quickly might be set at naught. And it may not be denied that many influences, both external and within the United States, are striving to push the Nation into war. American sympathy is almost solidly aligned with the European democracies, and while this alone is not enough to put the United States into the war, the addition to the American state of feeling of some small offensive ingredient, such as Herr Hitler readily might supply, would probably turn the balance and cause the American Nation abruptly to about face and demand war.

It is assured that every possible safeguard that American legislative ingenuity and public opinion can devise will be erected to keep the United States out of the war, and in this costs will not be counted. American ships will be compelled to sail clear of danger zones, and costly restrictions will be imposed on American commerce, and upon the movements abroad of American citizens. The Nation will be required to make many sacrifices, and to undergo extraordinary restraints. All these measures may be of no avail—if the thrust to disrupt American peace is made adroitly from across the Atlantic, that is, from the outside, from sources beyond the control of the Washington Government.

Forces Within Seek War

It is known that powerful forces within the United States have long been active in seeking, either deliberately or as guileless tools of malign influences, to embroil the American Nation in conflict with other nations. To a large extent without doubt the actual Nazi German influence in the United States has been curbed. To a lesser extent the American communist element probably is being held in check, but it should not be forgotten that these agents of the Comintern have been schooled to look to Moscow, not to Washington, for their orders to promote turmoil and conflict just as their confreres have been doing so effectively in China through the past two years. And allied with the Nazi German and Communist elements in an unholy ill-mated comradeship are groups of blind American idealists, who seek to prevent war by methods surely calculated to cause war, and professional pacifists along with vociferous segments of American labor bodies, and, with these, even influential groups in the protestant religious organizations that are ever active politically in every state in the union and at Washington. It may not be doubted either that both Great Britain and France would welcome the entry of the United States into the war. These great European democracies may come to such a pass that their actual future existence may depend upon armed help from the United States in the conflict. Since naturally they desire and hope to receive American assistance, it is to be expected

that all the potent forces of their diplomacy, and of the skilled propaganda agencies they control will be brought into action inside and outside of the United States, as in the past. Nor can Great Britain or France justly be criticized for taking such a course.

In view of all that is being done to prevent American participation in the European war, and the strong American opposition to any such involvement, it seems unlikely that all of the opposing influences combined can succeed in sending American soldiers overseas to fight. Since Great Britain and France control the seas, ultimately they should win the war, even if Russia joins the conflict on Germany's side, but this may not happen until all the vast resources of both empires are called forth at staggering costs in lives and in treasure. If ultimately the United States does get into the war, this will come about from a cause outside of the country. The initial provocation will be given from abroad. Hating and opposing war, the Nation will be forced against its will to fight.

The Menace in the Pacific

The second possibility of armed conflict that the American Government faces, that is, the possibility of war with Japan in the Pacific, differs almost wholly from the situation that has arisen in Europe. This is not an immediate menace, and probably it is an unlikely eventuality, but it is a possibility that exists, and it may not be so remote as some optimistic observers profess to believe. The danger in the Pacific is entirely distinct from that in Europe, for such a war can take place only if the Washington Government should decide to send the Nation's armed forces into territory and into seas far remote from the borders of the United States. It is not a conflict that will come to the United States. It is a war that the United States itself will have to start. It is obviously unthinkable that Japan would launch any hostile thrust against American territory or in American seas. All of the admittedly feeble propaganda agencies that Japan controls, and the whole force of her diplomacy, has long been directed and concentrated in the open effort to avoid by all means any conflict in the Pacific with the United States. This effort of Japan to maintain peace with the United States has been opposed consistently and more or less effectively by American commercial and evangelical interests in China and by Americans living in China, by Great Britain and France, and to a lesser extent by the Netherlands Government, because these Powers all have vast interests in the Pacific, and all of them distrust Japanese motives, and by most of those agencies and influences within the United States that are now seeking to thrust the United States into the European war.

Underlying causes that may lead the United States to undertake a war in the Pacific can be assessed and listed with a fair degree of exactness.

The superficial cause would be the purpose to safeguard the lives and the properties of American citizens residing in China, and the conflict almost certainly would develop from some incident having to do with the lives or properties of these American citizens in China. Americans living in China, exclusive of American armed forces, but including traders and missionaries, probably number between seven and eight thousand—about the population of a large American village. These represent American investments in China, including American mission, commercial and other related properties of less than U.S. \$200,000,000. Based on the commercial and related investment, in normal times, American trade with China annually amounts to about U.S. \$100,000,000 more than one-half of which is monopolistic in nature and cannot be affected adversely by any changes in China short of outbreak of war.

The Real Cause

The second, and the real cause, that may lead to conflict in the Pacific is because we favor and sympathize with China and at the same time distrust and are hostile toward Japan. This American

attitude has nothing whatever to do with material considerations; it rests wholly upon moral concepts, which may or may not be valid. Helpless and impoverished China, now gripped in the throes of a Japanese invasion, has long been the sick man in the family of nations, and through many years this hapless country has been the special protégé of the United States. It has been an expensive responsibility. The keynote of American Far Eastern policy from the time of the overthrow of the Manchus, and before, has been the maintenance of the territorial and administrative integrity of the Chinese Nation, which only in recent years has been able to attain even a semblance of self-government, and never has been able to erect a constitutional or representative government, such as popular opinion in the United States has long envisaged as existing in a republic of China. While in protecting China the United States has had repeated controversial exchanges with Britain and Russia and other powers, but on behalf of her Asiatic ward the American Government has been almost continuously through decades in acrimonious conflict with Japan over Japanese encroachments on the Asiatic continent. Succeeding American administrations at Washington have never missed an opportunity to act with the aim of thwarting Japanese expansion on the Asiatic mainland.

In the beginning, when American policy in the Far East was first assuming form and direction, the purpose of maintaining the integrity of China, and the related Open Door pronouncements, grew out of a belief that this line of policy would ensure the speedy development of a boundless profitable future trade with China. This idea was expanded in the time-worn legend of "four hundred million customers," a theme upon which suave western-educated Chinese diplomats delighted to enlarge, astonishing hearers in recounting the amazing benefits that would flow into Occidental industrial plants when the shirt-tail of every Chinese was lengthened by a single inch. The shirt-tails, unhappily, have been shortened instead of lengthened. Every competent authority admits to-day that the vast Chinese market can remain but an empty dream as long as the four hundred million customers that comprise that market have yearly only ten Chinese dollars each with which to live. They know, too, that the Open Door in China has never been anything more than an economic illusion, because the attempted operation of the principle by the United States has meant for Americans the outlay in China of not less than seven dollars for every dollar that American traders have been able to take out of the country.

Disclosing a Contrast

In financial relationships, and in trade with America, China has ever been but an indifferent customer with an exceedingly bad credit rating. On occasion, through use of the familiar Chinese weapon, the boycott, and in lawless acts and outright banditry, China has often spurned the friendship of her American guardian. In contrast with this Japan has consistently maintained amicable and mutually profitable financial relationships and trade with the United States and long has stood near the head of the list of nations doing business with America—the third best customer of the United States, in fact. Americans have a great admiration and deep friendship for the little nation of Finland, because that country ever has been prompt in paying off outstanding obligations. In this admirable quality, however, little Finland has only attained parity with Japan, and with lesser stakes. Japan has never defaulted on debts she owes abroad. Still the United States remains the staunch friend of China and continues to give this unruly, unreliable ward every form of assistance and encouragement while at the same time striving whenever occasion offers to hamper and to curb aspirations of Japan. For these causes Americans talk of going to war in the Pacific.

After the war with Russia-Japan took first rank in the family of nations. The great powers of the Occident and all their dominions first closed their doors to the Nipponese people, then, latterly, they erected tariff walls and with trade quotas, accompanied by restrictions on sales to Japan of raw materials, they imposed crippling restraints upon Japan's foreign trade. These things began to have the effect of throttling the vast industries Japan had created to provide for a great and growing population debarred from emigration and compelled to live in a land so ill-favored by nature in resources and arable land that the Nation to survive has to depend upon imports from outside of her borders. These stern conditions

forced Japan to take the one course left open to her—into the Asiatic mainland. When the United States and the other Occidental powers attempted to close this last remaining line of egress into Asia the lid of the seething political pot in the Far East blew off. Then followed the Manchurian incident and the present war in China.

Japan now insists that conditions vital to her compel her to assume a dominant place in East Asia and that this sphere, not merely geographically, but distinctly and peculiarly, is her part of the world, because she is the only great power in this part of the world. Perhaps the seed from which this attitude has flowered and matured to-day was sowed years ago at Oyster Bay when, shortly after the Portsmouth treaty was signed, a former American President, the first Roosevelt, advised Japan to create in Asia "a Monroe doctrine of her own." Japan ever since has been striving to do this and her efforts have met with obstructions and objections from Great Britain and France and, especially, from the United States.

In their attitude of opposition to Japan, Great Britain and France are actuated by material considerations, for these powers have vast interests in East Asia in which they have been entrenched for many years. The Open Door principle and the integrity of China are factors in the Far Eastern situation vastly more important to Great Britain than for the United States or other Occidental powers. The British stake in China dwarfs that of the United States by a ratio of something like ten to one in dollars and cents, but, besides this, unlike the American position, the huge British investment in China is linked closely with all the other great British possessions in the Far East and therefore with far-flung destinies that involve the destiny of the British Empire. This is true also for France, but only to a lesser extent.

How American Policy Took Form

In earlier days American distrust of Japan grew out of concern over possible menace to the Philippine Islands and this feeling doubtless furnished reason for the initial moves that Washington took to curb Japanese expansion in Manchuria and in China. Added factors were insistent complaints from American traders in China and Manchuria, who alleged that Japan was violating the principle of the Open Door, particularly in Manchuria, and the great political change that took place in China in 1911. After the fall of the Manchu regime in that year the great Chinese patriot, Dr. Sun Yat-sen, voiced his great hope in a phrase which American opinion accepted as a reality—"The Republic of China." This aspiration, which the United States looked upon as an accomplished actuality, has been an illusion most useful to generations of Chinese overlords and diplomats, and it persists to this day. It was in keeping with the line of policy that United States then was shaping optimistically to shoulder the burdens of "our sister Republic across the Pacific." American activities in Asia also served to safeguard British and French interests in that sphere, as is the case to-day, so American moves to hamper Japan received cordial encouragement from these European powers.

No one will suggest that the United States can win anything whatever by fighting a war in the Pacific, and no one can deny that such a conflict would be exceedingly costly in American lives, in trade, and in treasure. In view of the present-day state of world affairs it seems logical to deduce that the only possible gainer in such a conflict would be Soviet Russia. It is absurd to believe that the United States would go to war over the American commercial and other holdings in China, for the cost of ten days' fighting such a conflict would exceed the whole value of these holdings. The war could only start from some initial cause in China, some incident involving American lives or property or trade. This would be a mere spark carelessly dropped into the powder keg. The real cause of the conflict would rest upon abstract principles and upon purely moral grounds. Sacred international law has been flaunted, charge the moralists, Japan has broken the treaties and has violated the integrity of China. Denials of the defendant are over-ruled unheard; he has been arraigned and convicted; the penalty must follow. This is the way into which the situation seems to be veering.

Perhaps it is because American attention is sharply focussed at this time almost wholly upon the European struggle that public opinion is concerning itself exclusively with the elaborate efforts to keep the Nation out of that conflict. It should not be forgotten

that while the danger in the Pacific is more remote, it still exists, and it should be a primary interest of the United States. Recently a prominent Japanese naval officer, Rear-Admiral Gumpei Sekine, Retired, published an article in the *Bungei Sanju*, a popular Tokyo magazine. In this the writer bluntly charged the United States with hypocrisy in its attitude toward the situation in China. The article, which appeared just when the United States was sending a war fleet to Hawaii, attracted widespread attention in Japan and excerpts from the article were cabled by correspondents to American newspapers. It is quite likely that in the United States the Japanese officer's frank views served only to stir the same kind of resentment that the Japanese public has felt so often in the past over published outbursts of highly placed American dignitaries. In what he wrote, however, Rear-Admiral Sekine did seek to offer several constructive suggestions. "I should like," he said, "to see America abandon its suspicions of Japan, and adopt a moderate attitude in settling the question of American interests in China through negotiations with Japan, for Japan would deal with America in a cheerful frame of mind. Then the question of mutual interests in China as well as the safety of the Philippines after their Independence would find a solution, and the clarification of Japanese-American interests would obviate any necessity of fortifying the Island of Guam." Most arresting of the ideas that Rear-Admiral Sekine presents is contained in his assertion that "it would be in the interest of Japanese-American friendship if the United States were to sell Guam to Japan." If the sale of Guam to Japan actually would serve to adjust Japanese and American relations in the Far East and remove a potential cause for war in the Pacific it would seem that the idea merits some measure of attention.

The Importance of Guam

Only recently the American Congress refused to grant even an insignificant appropriation to begin the building of fortifications on the Island of Guam. In the opinion of naval experts the strategic value of Guam is extremely doubtful, and this expert opinion leans toward the belief that in case of war in the Pacific Guam could not be defended, even if fortified, save, at a wholly unwarranted cost. Guam derives most of its strategic importance from its relationship with the Philippines, and if American control of the Philippines is to be removed, as seems likely, then Guam must lose all strategic importance. It is to be remembered that this dot of sand in the western Pacific is surrounded on all sides by some 1,400-odd other small islands of the Mariana group, all of which are under the Rising Sun Flag of Japan. If Guam were brought under Japanese control the island could not under any circumstances ever be regarded as a potential menace to any American territory. Guam lies six thousand miles distant from the American mainland and 3,750 miles from Pearl Harbor in Hawaii. On the other hand Guam is only about 1,200 miles from the coasts of Japan proper—fairly easy bombing range. This must be a matter of real concern to the Tokyo Government, particularly in times of tension. To Japan Guam constitutes an actual potential menace.

The Island of Guam is an important station of the trans-Pacific American air services and is the last hopping-off place for the west-bound Clipper planes on their way to Manila, which is 1,500 miles distant. Also on Guam is an important American cable relay station. It is reported that recently permission has been given for Japanese trans-Pacific airplanes to land at Guam and use the well-equipped Pan-American Clipper aviation facilities on the island for a projected Tokyo-Manila and Tokyo-San Francisco airline that is to go into service in coming months.

If the United States were to dispose of Guam to Japan this would at once dispel and dissipate any Japanese suspicion or belief that the United States entertains any warlike intentions in the Pacific. But, assuredly, if the United States did make this gesture of amity it would only be done if all the existing American values on the Island were retained, keeping the air port facilities and the cable station under the American Flag and under American control. This probably might be done under some perpetual lease agreement or otherwise and would have the effect of neutralizing the Island and making it serve only civilian commercial uses. It might be remembered that some eighteen years ago the United States had a long-drawn-out controversy with Japan over the Island of Yap in connection with the larger controversy over the islands north of the equator that were given to Japan under mandate after the World

War. This trouble concerning Yap and its cable station at length was adjusted amicably when possession of Yap was yielded to Japan while the United States retained all rights on the island, including rights of residence, which no American, however, has yet seen fit to exercise.

In view of these things Rear-Admiral Sekine's suggestion may possess a very special merit, for it might be the key to solve the whole Far Eastern question. This 200 square miles of sand in the far western Pacific may be the smallest trump in Uncle Sam's hand which he might play to tremendous advantage, removing causes of discord and dangers of war in the Pacific while adjusting every outstanding Far Eastern question.—*val*.

New O. S. K. Ships

With a view to easing the tonnage shortage, which is said to hamper the smooth conduct of Japan's foreign trade, the Osaka Shosen Kaisha has decided to place five modernized steamers on the African and South American runs next year. Domei reports:

The vessels, their tonnages and their runs, are as follows: *Brazil Maru*, 13,000, South America; *Hokoku Maru*, 10,500, South Africa; *Kokoku Maru*, 10,500, South Africa; *Aikoku Maru*, 10,500, South Africa; *Nan-a Maru*, 6,700, West Africa.

Of the five ships, the *Brazil Maru* and the *Nan-a Maru* will be commissioned early next year, while the *Aikoku Maru* and the *Kokoku Maru* will be finished by the latter part of April.

The Lion-tamer and the Malaria Mosquito

JACK HOWARD was a renowned lion-tamer. He worked with lions and tigers. During his career, he had on many occasions been attacked and injured by the animals whilst doing his sensational turns, but his wounds always healed and Howard never dreamed of giving up his profession. His shoulders, thighs, arms and legs bore deep scars, made by the claws and teeth of his dangerous collaborators.

One of his friends, who looked after the performing fleas, and with whom he passed all his spare time, endeavored to show him that insects were more dangerous than lions and hippopotami, but Howard thought that this was a stupid joke.

One day he decided to go and study the animals in their natural setting in the desert. He left for the center of Africa with a band of hunters, and a film company offered the celebrated animal tamer a large fee if he would go into the desert unarmed, encounter a lion and put the latter to flight. Howard accepted this proposal. This dangerous scenario was carried out with complete success; in fact, the lion bolted into the tall grass.

A fortnight later, Howard fell ill. For months he lay between life and death. When at last he was able to consult a doctor, the latter found that his patient was suffering from a serious attack of malaria and that a single bite from a malaria mosquito had been enough to infect him. The doctor who attended him, applied the short treatment, as per the recommendation of the Malaria Commission of the League of Nations, which prescribes for treating this malady a daily dose of 15 grains to 20 grains of quinine during five to seven days, and as a preventive measure a dose of six grains of quinine per day during the fever season.

On page 125 of its report, issued in 1938, this Malaria Commission stresses the fact that among the anti-malarial drugs, quinine still ranks first in current practice, by reason of its clinical effectiveness and almost complete absence of toxicity, coupled with the widespread knowledge of its use and dosage.

Thanks to this wise treatment, the lion-tamer recovered his health. As soon as he was better, he didn't wish to remain another day up country. Upon his return to Chicago, his first visit was to his friend, who showed the performing fleas. "You were right, old chap," he said. "Insects are more dangerous than lions. My ferocious animals have only given me a few scratches, but a tiny African mosquito took me to death's door!"

American Policies Under Fire

Japanese Naval Officer Accuses United States of Hypocrisy in Attitude Toward Campaign in China

REVIEWING American-Japanese relations in a long article appearing in the October number of the *Bugei Shunji*, popular magazine edited by Mr. Kan Kikuchi, Rear-Admiral Gumpei Sekine, retired, accuses the United States of hypocrisy in its attitude toward the Sino-Japanese war.

America's loud and perpetual preachments regarding humanity and justice in the conduct of international affairs in reality cloaks a policy of greedy self-interest, just as they did in the World War, the retired naval officer declares.

Writing with a sharp pen, Rear-Admiral Sekine gets to what he feels is the hub of the question in the following remark:

"The question (of increasingly strained relations) boils down to whether or not America means to go to war with this country over China. Some hold that a solution can be found to the China incident without a war between Japan and America. Others aver that only an armed conflict between the two Pacific countries can settle the incident."

The Rear-Admiral's own opinion is that America will not risk a war with Japan, because there is not enough at stake to make it pay.

The writer holds that the Nine-Power Treaty, which he claims was signed in a bad atmosphere and virtually under coercion, must be abrogated, just as the Washington Naval Treaty, binding Japan to permanent naval inferiority, has been cast aside.

Rear-Admiral Sekine hastens to add, however, that Japan has no territorial ambitions in China, or elsewhere in East Asia, and that the legitimate rights of third Powers in China will continue to be recognized.

Sale of Guam Suggested

If American-Japanese relations actually are to be improved, as heartily desired, the United States must moderate its attitude and recognize Japan's true position and intentions, he declares. If the United States were to sell the island of Guam to Japan, he suggests, it would do much to remove mutual distrust and prove American sincerity toward this country.

Rear-Admiral Sekine's article, entitled *Construction of a New East Asia and Relations With America*, is translated as follows, in substance:

"Japan has taken in hand the construction of a new order in East Asia. It is admitted that the task will never be an easy one, for the reason that the countries which have waxed prosperous through preservation of the *status quo* are determined to resist any attempt at destruction of the old order, even to the extent of sacrificing the peace of the world.

"The China incident, the long-range objective of which is the construction of a new East Asia, broke out 26 months ago. It would seem that it will be a long time before the immediate objective of the campaign in China—the destruction of the Chiang Kai-shek regime—is achieved. It would be an easy matter to bring the Chiang regime to collapse, were it not for the fact that there are foreign countries in the background of its resistance against this country.

"American sentiment toward Japan has grown increasingly hostile since the outbreak of the incident, although there has been no outright rupture of relations. If there has been no breach in American-Japanese relations, it may be ascribed to the fact that the two countries had been friendly toward each other for many years before the present trouble arose.

Dates from Manchurian Affair

"At the time of the Manchurian incident, America notified Japan of its intention to withhold recognition of any government brought into existence through Japanese action, despite the fact that the dispatch of troops to Manchuria was in exercise of the right of self-defense. Although the American action was resented by the Japanese, they refused to allow themselves to be swayed by a feeling of indignation comparable to that which swept the country at the time the discriminatory immigration law was enforced.

"Toward the action taken by the United States a few weeks ago in abrogating the 1911 Treaty of Commerce and Navigation, the Japanese thought fit to adopt an attitude of moderation. This was not motivated by deference to American might but rather because the Japanese still hold an inordinate measure of goodwill for the Americans. They hold, however, that there is no reason why America, which has understood Japan's problems since it was opened to the world, should be unable to appreciate its present viewpoint.

"But the citizens of the United States must keep the fact in mind that there is a limit to the patience of the Japanese. It will not be too much to say that the history of Japan in the comity of nations since the Russo-Japanese War has been marked throughout by cheating at the hands of Britain and oppression at the hands of America. This fact is beginning to dawn on the minds of the Japanese. They seem to be awakening to the true character of America.

U.S. Regarded Too Highly

"To state it frankly, the Japanese have thought too highly of America. It is a fact that most Japanese have accepted the belief that America is a country wedded strictly to the principles of justice and humanity. I do not go so far as to say that America has flouted these sacred principles. The point is that there is nothing to distinguish the United States from other countries. Put another way, America like other countries has paid lip service to justice and humanity, while pursuing its dominating policy of self-interest.

"At the time of their entry into the World War, it was the conviction of the American people that their participation was for the purpose of defending justice, liberty and humanity. The real motive behind the American entry into the World War on the side of the Allies was the fear that the defeat of the latter by the Central Powers would result in heavy economic losses to the United States, which had financed them and furnished them with arms and munitions during the greater part of the war.

"American leaders talked of saving the world for Democracy simply for the purpose of working the people into a fighting pitch. Their real object, obscured by cries of justice and humanity, was to protect the investments and interests of American capitalists in Britain and France.

"That the aim of American leaders is to promote their interests under the cloak of championing justice and humanity in a wicked world is further evidenced by the attitude they adopted during the Manchurian incident. In the American Government's note to Japan in protest to Japanese action in Manchuria, it was stressed that America had an important rôle to play in the settlement of the incident. Its attitude was based on a utilitarian policy. Our conclusion is that America's talk of justice and humanity is a mere matter of formality, and that its real aim is to further its material interests. This would seem to be apparent in the stand taken by the United States in the series of representations to this country with regard to the current incident. I wonder what feeling the Japanese will come to entertain against the Washington Government should it persist in its present attitude toward this country.

Japanese Disillusioned

"The Japanese were mistaken in their assumption that the American people, who attained their independence by breaking away from British oppression, would be sympathetic toward the Japanese campaign in China, the objective of which is the establishment of a new order in East Asia for the good of all Asiatic peoples. The Japanese fondly believed that the Americans would be the first to understand the position of Japan, which was similar to that in which America was placed at the time of its Revolutionary War.

"I wonder what the Americans will say if the Japanese arrive at the conclusion that the United States, after all, shares with Britain the desire to prevent the development of China and to keep it in a semi-colonial status for the sake of exploitation by greedy third Powers.

"What America has done in the past in China, under the policy of the open door and equal opportunity, was nothing more than exploitation. Did America make any attempt to convert China into an industrial nation, for the good of the Chinese people?"

"American policy toward China is such that it will not be an easy matter to adjust American-Japanese relations. The Japanese, vitally concerned about the attitude of America toward this country, are most anxious to know whether there is any intention on the part of the United States to go the length of resorting to armed force in order to make its view prevail regarding the China incident. The question narrows down to just that—whether America means to go to war with Japan over China.

"Some hold that a solution can be found to American-Japanese relations without going to war. Others aver that only an armed conflict between Japan and America will settle the China incident. To my way of thinking, America will not risk war with Japan over China. The American people realize that war in the Pacific will bring them no profit, just as their participation in the World War added nothing to their interests.

"But much depends on the attitude of the American Government toward this country. If there is no modification in the attitude of the present Washington rulers, who regard Japan and the Japanese people with enmity, there is no gainsaying that a crisis will arise in Japanese-American relations.

"There is no occasion for alarm on the part of the Japanese people, however, so long as they pursue the policy of preparing for the emergency. Some persons are apprehensive lest there be war in the Pacific. They may rest assured. There is the Imperial Navy, which can stand its own with any fleet in the world. While the navy has command of the sea in the Western Pacific, the American fleet will not be able to attack Japan so easily as American officials and citizens once believed.

"If the Americans cannot appreciate Japan's intentions, it is because they are blinded by love of gain and cannot see Japan and the Japanese people in their true light.

Has Nothing to Lose

"There is every reason for believing that the United States has everything to gain and nothing to lose if the new East Asiatic order envisaged by Japan is established. If it modifies its attitude and co-operates in the construction of the order, Britain likely will follow suit.

"The Washington Government is making a fuss over the alleged failure of Japan to observe provisions of the Nine-Power Treaty. This treaty, it must be remembered, was signed in the atmosphere engendered by the conclusion of the Washington treaty, which curtailed Japan's naval strength to 60 per cent of that enjoyed by the United States and Great Britain. It did much to cause the Chinese to hold this country in contempt. In fact, the Nine-Power Treaty did as much to aggravate Sino-Japanese relations as did the Washington Naval Treaty. Japan must abrogate the former, just as it did the unfair naval treaty imposed upon it by Britain and America.

"Japan has no territorial ambitions in China, or anywhere in Asia, in fact. Neither has it any intention of undermining American interests in this part of the world.

"I should like to see America abandon its suspicions of Japan and adopt a moderate attitude of settling the question of its interests in China through negotiations with this country. Japan would deal with America in a cheerful atmosphere. Then the question of mutual interests in China, as well as the safety of the Philippines after their complete independence, would be able to find their own solution.

"Clarification of Japanese-American interests would obviate the need for fortifying the island of Guam. In this connection, I think that it would be in the interest of American-Japanese friendship if the United States were to sell Guam to Japan, so that this country may guard it for the sake of peace in the Pacific."

China at the Cross-Roads

CHINA made a start towards establishing an already long-overdue "New Order" in East Asia as far back as October 10, 1911, when began the final revolutionary effort to establish a Republic. The normal and natural consequences of that tremendous upheaval presented problems by no means pleasant for many interests which stood to profit handsomely from a continuance of the *status quo*. Consequently political, social, and economic progress under the young Republic came up against many difficulties, but the reformers battled courageously on, and slowly but surely made headway in the desired direction—national unification and reconstruction. With the outbreak of Sino-Japanese hostilities in 1931, and again in 1937, the entire resources of the nation—so far as they were capable of organized control—were concentrated upon military defence in resistance to Japanese plans for establishing a "New Order" in East Asia.

It is not necessary here to dwell upon the circumstances in which conflict started in 1931 and again six years later. Nations at war never agree as to the fact leading up to conflict, and—as may be seen in Europe—the emergence of vital facts upon which impartial judgment may be based is extremely slow, so that the truth about the causes of and responsibility for war is most difficult to arrive at. Nor is it necessary here to deal in any detail with the distressing and disastrous happenings of the past two years in China, but in the midst of this misery the "New Order" in East Asia is taking shape, and out of the awful agony of mind and body which has overwhelmed the people of China will come, eventually, of a certainty, a more peaceful, more rational, and more progressive manner of living for the masses than this country has ever known during its thousands of years of history.

How, and when, will this happy development come about? Not in the twinkling of an eye, nor by a mere stroke of the pen—and most assuredly not while shells and bombs darken the skies. The first essential to progress is peace. Only when warfare stops

can civilizing influences and moral forces assert themselves; even the possibility—the remote prospect—of conflict is sufficient to impede, if not to paralyze, every attempt at social or economic advancement which has no claim to be regarded as enhancing the national strength from the militaristic viewpoint. China to-day stands at the cross-roads, free to turn her face in one of two directions, and upon her decision which road to take the fate of the nation depends.

What is the alternative to concluding an honorable peace with Japan? There is only one—to continue hostilities, and how this is to be done was counselled by Mr. Chow En-lai, the Communist Vice-minister of the Political Training Board of the Military Affairs Commission at a Press conference in Chungking on June 6. Mr. Chow expressed disapproval of making counter-attacks on great cities occupied by Japanese troops, because if—a small but very important word—they were re-occupied and had to be given up again, this would cause more disappointment to the Chinese nation than if no attempt at all had been made to recapture the lost positions. The better strategy, continued Mr. Chow, was for China to keep her forces at striking distance and "continuously harass the enemy until he was completely exhausted." Already, according to Mr. Chow, Japan has 85 per cent of her military strength in China engaged in conflict with guerilla forces, but "mopping-up" operations had largely proved a failure, and where they had met with some little success, this "had been due rather to some weak point on the Chinese side than to Japanese strength."

But that is a state of affairs which invariably decides the issue of every conflict of military forces in any part of the world—at some point there is a weakness which is unable to resist the strength opposed to it, and Mr. Chow En-lai must have a very poor opinion of his countrymen's common-sense if he expects them to accept his "explanation" of Japanese military successes as not only completely satisfactory to the Chinese commanders, but calculated to encourage the nation to approve further useless sacrifice of Chinese

lives. Everybody knows that it was "some weak point on the Chinese side" which led to the loss of every inch of territory occupied by Japanese troops. It is fatuous for this spokesman of the Chungking Government to argue that in the struggle between Sino-Japanese forces victory has not been due to Japan's superior strength but to China's inferior power of resistance. As well might one pretend that the loss of a junk in a typhoon was not due to the tempestuous strength of wind and wave, but to the weakness of the wooden hull exposed to those forces!

Fighting decides nothing but the fate of those who fall while taking part in it. Those who survive the slaughter and struggle—if fortunate enough to be still physically fit—must devote their energies to repairing the damage done. More than this—the "victors" must make certain, if they can, that the beaten enemy will be never able to avenge his defeat, while the "vanquished" will at once make secret plans to evade the most vigilant watch upon their activities, hopeful that eventually an opportunity will present itself for recovering lost territory, power and prestige.

In short, one war leads to another as surely as night follows day, and the futility of this senseless and savage effort at "settling" differences between nations was never so widely and clearly recognized as during (and immediately after) the World War of 1914-18. There was a popular impression that this was a "war to end war," and such many millions of humble people sincerely believed it to be, but the "peace" of Versailles proved no more than an armistice—providing a period of recuperation in which to make preparations for the next outbreak of international homicide. The direct consequences of that "peace" are seen in Europe at the present moment, when 10,000,000 armed men are again facing one another in mortal but futile combat, to defend their respective countries against each other.

Any fool can start a war, but bringing conflict to an end is a feat far beyond a fool's capacity, and to bring hostilities to a close with a minimum of dissatisfaction and dissent on both sides is a task which calls for the wisest men. All wars must come to an end, sooner or later, and even Mr. Chow-En-lai's scheme of establishing guerilla bases behind the Japanese lines each of sufficient strength to keep 50,000 troops busy trying to suppress their activities, would merely postpone the day on which Chinese and Japanese peacemakers must eventually sit down together and agree to come to terms. Mr. Chow would carry on this guerilla campaign to "harass the enemy until the foe was completely exhausted," but discreetly omitted to give the public his idea as to when Japan would be likely to reach a stage of "complete exhaustion" as a result of such a campaign. Is it not possible, or probable, that the millions of unfortunate Chinese non-combatants still gallantly trying to keep body and soul together in the "harassed" areas might be the first to become completely exhausted, caught between the cross-fire of guerilla and Japanese forces, and forced to obey the orders of both in turn, as first one and then the other secured control of a strip of disputed territory? This is one of the questions which China has to consider before deciding which way to turn at the cross-roads.

One of the most bitter tragedies arising out of the Sino-Japanese conflict has been the suffering inflicted upon peasants who found themselves suddenly caught in the line of fire between contending forces—saw their houses and fields destroyed and their few possessions ravaged—were killed outright or met a lingering death along roads crowded with frightened refugees like themselves, trudging scores and even hundreds of miles from their native places in hope of being able to find some spot where they could stay without being in constant fear of meeting horrible and sudden death. It is believed that no less than 50,000,000 people have been forced to leave their homes in various parts of China during the last two years, and considerably less than half this number have been able to return to the wreckage left by the receding tide of war and resume their pitiful struggle for existence,—but have found themselves forced to fill the ricebowls of guerilla forces and armies of bandits, many of whom are peasants driven in sheer desperation to resort to loot and murder simply because they are unable to find honest means of livelihood in "harassed area." And yet a spokesman of the Chungking Government dares tell representatives of the Press that this sort of thing is to go on until Japan is "completely exhausted," that China—without access to a single seaport or control of any great inland waterway, unable to profit by import or export trade—can hope to emerge victorious from her struggle simply by converting rice-fields into battlefields upon which guerilla forces can

"harass" Japanese troops. The men and women who depend on the good earth for their living have already suffered enough and sacrificed enough, and if there is an alternative to Mr. Chow En-lai's road to a "peace," which is perdition, they should take that path, especially as the decision at the cross-roads can be taken without loss of honor and self-respect, and without giving up their independence.

And here let us acknowledge with gratitude the fact that the frightful sufferings of our unhappy countrymen during the past two years would have been infinitely worse but for the unselfish relief work undertaken by foreign friends, individually and collectively. Magnificent work has been done by the International Red Cross, China Famine Relief Fund, and similar organizations, while hundreds of missionaries, doctors, teachers, and other foreigners of many nationalities carried out plans for providing food, shelter, and medical attention for the helpless refugees around them. Gifts of money and supplies were sent to China from abroad, and foreigners residing in areas ravaged by war showed splendid courage and self-sacrifice in standing by their posts and doing everything they possibly could to relieve the pitiful suffering they saw on every hand. Disappointed though China has been at the failure of some Governments to render the assistance which had been promised, the Chinese people will remember with profound gratitude the foreign aid given them, quietly and generously, when that help was so urgently wanted. Yet how small, in fact, was this great effort in comparison with the need, and how much still remains to be done for the relief of suffering. Standing at the cross-roads, and seeing the appalling misery on every hand, what man with a heart capable of feeling sympathy for his unfortunate fellows can ask these helpless millions to continue suffering when there is a way open to escape further agony and sacrifice?

In establishing a "New Order in East Asia," we are told that Japan desires China's co-operation. In so far as their own country is concerned, the Chinese people also want to see a "New Order" established, on the lines laid down by Dr. Sun Yat-sen. It is understood that Japan has no objection to the Chinese people working out their own salvation in their own way—in other words, that the work which was started with the foundation of the Republic can be resumed without any further interference from Japan. It is further understood that the Kuomintang is no longer regarded with hostility by Japan—provided it has no association with Communism, and the Party confines itself to a policy of national unification and reconstruction, at the same time adopting a friendly attitude toward Japan. As to this last point, the deciding voice rests with Japan, no less than with China.

China and Japan are natural friends, unnatural enemies. The Kuomintang has no wish to be "anti-Japanese" or "anti" any other nation, and providing that China's sovereign rights and territorial integrity are respected, there is no reason for the Party to show hostility toward any foreign Government or people. As everyone knows, shortly before the outbreak of hostilities in 1937 there were indications in Japan of new appreciation of China's real position and of a desire to establish better relations between the two nations. China has never opposed any movement in that direction, but has and will resist anything that savors of domination. Co-operation between the two countries, however, should be their normal relationship and could be if it is clearly understood on both sides that co-operation means nothing more or less than a working together for mutual advantage. This, then, is the choice before China as she stands at the cross roads after more than two years' of stupendous struggle for liberty and independence, one road opens up the prospect of peace, with the promise of Japan's co-operation in the task of national reconstruction; the other road opens up not the prospect but the certainty of further suffering and destruction, with nothing more at the end—whenever that may be—than can be had to-day by frankly facing the situation.

All that China has been fighting for is recognition of her sovereign rights and territorial integrity, and if Japan is willing to recognize those claims, as she has already solemnly done in the Konoye Declaration of December 22, 1938, there need be no hesitation at the cross-roads. All other questions can be settled amicably enough if those fundamental issues are agreed upon; mistakes on both sides can be admitted and corrected, and if the pledge of co-operation is faithfully carried out, the "New Order" in East Asia, which both China and Japan hope to see established, will come into being in the clear atmosphere of harmony instead of a poisonous fog of fear and hatred.

Japanese Trade in the Philippines

By RIZAL F. GATICA

THE boycott of Japanese goods by Chinese merchants who predominate in the retail merchandise business in the Philippines, as a result of the more than two-year old Sino-Japanese undeclared war has continued to show an adverse effect on Philippine-Japanese trade during the first six months of 1939. Of course, the shortage of foreign exchange in Japan which forced the government to use its financial resources to successfully wage the war in China, and at the same time restrict purchases of Japanese importers was another contributing factor leading to the dislocation of established Japanese trade foothold in the Philippines.

Where Japan sustained losses, other industrial countries doing trade with the Islands registered gains. This was especially manifested in the textile import trade of the Philippines which Japan threatened to dominate until the China War broke out in 1937. In 1938, the United States regained its supremacy in the Philippine cotton textile market due in a large measure to the War, and partly as a result of the operations of the gentleman's agreement between Japanese and American textile manufacturers which limits the exports of Japanese textiles to the Philippines to 45,000,000 square meters a year. This agreement, which expired July 31, was again extended for another year effective August 1.

These factors have reversed the upward trend of Japanese export trade in the Philippines and arrested its increasing competition much feared by all countries trading with the Islands, especially the United States.

With these factors working against Japanese export trade, trade between Japan and the Philippines slumped during the first six months of the current year to a total value of only P.15,915,088 as against P.22,420,630 during the corresponding period in 1938. This shows a decline of P.7,405,542, or 33 per cent. Imports of goods from Japan were worse hit by the Sino-Japanese conflict than exports of Philippine products to Japan. Philippine purchases during the period under review were valued at P.7,791,453 as compared with imports in 1938 valued at P.15,131,554, or a drop of 48.5 per cent. Exports to Japan declined but only slightly, shipments being valued at P.7,223,635 as against P.7,289,076 last year, showing a loss of only P.65,441, or less than one-half of one per cent.

The balance of trade, as can be seen from these figures, is still in favor of Japan, although the balance dropped considerably this year. The trade balance in favor of Japan this year amounted to only P.567,818, or 7.14 per cent of the imports, while the balance for the first six month period in 1938 was P.7,842,478, or 51.82 per cent of the imports during that whole period. It is believed, however, that if the present trend of trade between the two countries continues till the end of the year, the Philippines will show a favorable balance for the first time in many, many years.

Outside of the United States, the Philippines does more trade with Japan than any other country in the world. Japan is the second best market for Philippine export commodities as well as the second leading supplier of imported goods of the Islands. Japanese trade with the Philippines or imports from Japan amounted to 7.79 per cent of the total import trade of the Islands during the first semester of 1939 as compared with 9.83 per cent during the same period in 1938. Japan's share of Philippine export trade was 5.31 per cent this year as compared with 5.49 per cent last year. The total Philippine-Japanese trade, exports to and imports from Japan, was 6.36 per cent of the total foreign trade of the Philippines this year as against 7.83 per cent last year. Were the Philippines not under the sovereignty of the United States, trade between Japan and the Islands would certainly increase tremendously. Philippine products enjoy a preferential market in the United States at present, and American goods enter the Islands entirely free of duty.

The movement of trade between the Philippines and Japan during the first six months of 1939 as compared with the same period in 1938 is indicated in the following table:

	Exports to Japan		Imports from Japan	
	1938	1939	1938	1939
January ..	P.1,382,077	P. 930,186	P.2,968,295	P.1,521,285
February ..	703,457	1,576,724	2,616,940	1,190,577
March ..	2,122,004	1,385,741	3,446,767	1,327,132
April ..	1,202,390	899,112	1,930,658	878,554
May ..	1,104,272	1,077,544	2,038,107	1,269,453
June ..	774,876	1,354,328	2,130,787	1,604,452
Total ..	P.7,289,076	P.7,223,635	P.15,131,554	P.7,791,453

Trade during this period, as can be noted from the above table, was featured by a favorable balance of trade registered by the Philippines during three months, February, March and April, while last year the trade balance was in favor of Japan for the whole first six month period. While this is encouraging enough on the part of the Islands, the trade balance was in favor of Japan for the entire period.

The decline in imports of Japanese goods this year is due to considerable drop in shipments of cotton piece-goods, silk and rayon cloth, fish and fish products, glass and glassware and other imports. The most pronounced loss was in rayon piece-goods, Philippine imports dropping considerably to a total amount of 2,597,830 square meters from 12,565,124 square meters in 1938. Arrivals of cotton piece-goods also declined to 13,774,196 square meters as against 15,266,125 square meters in 1938. Japanese textiles are the principal competitors of similar American manufactures in the Philippine market. The United States has become a good source of rayon imports this year as shipments from that country amounted to 2,645,830 square meters which compared with only 670,811 square meters last year. The gain in American cotton piece-goods however was only slight with a total of 48,569,819 square meters as compared with the total imports of 47,658,744 square meters last year.

Leading imports of the Islands from Japan, besides cotton goods, silk and rayon textiles, are iron and steel manufactures, vegetables, fish and fish products, glass and glassware, coal and coke, cement, hats and caps, and India rubber and its manufactures. During recent years, Japanese canned goods have also threatened American canned goods but this year the threat of increased Japanese competition has been averted because arrivals from Japan have been small.

Philippine exports to Japan, in the order of their importance, are iron ore, abaca, lumber and timber, copper ore, manganese ore, tobacco products, maguey, canton fiber, and ramie fiber.

The effect of the Sino-Japanese conflict on Philippine-Japanese trade was first felt in 1938 when total trade between the two countries declined to a total value of P.40,440,425 as against P.52,233,835 in 1937, or a drop of 22.57 per cent. Imports from Japan dropped to P.25,414,083 from P.32,204,014 in 1937, or a loss of 21 per cent. Exports to Japan sagged to a total value of P.15,926,342 from the 1937 figures of P.20,929,821, or a decline of 24.97 per cent. The upward trend of the trade between the two countries was thus arrested in 1938 after advancing steadily since 1934. Previous to 1934, the trade was on the downward movement, but the trend was reversed beginning 1934 when Japanese trade expansion gained momentum in different markets of the world, threatening to dislocate old established trade routes of European and American industrial countries.

In view of the fact that Japan is the second best seller to the Philippines, the decline in trade between the two countries affected the customs receipts of the Philippine government. The annual report for 1938 of the Philippine bureau of customs which has just been recently released states that the "sudden and sharp decrease in customs receipts was due largely to the decrease in import duties . . . which decrease was brought about by the boycott of Japanese goods by local Chinese importers on account of the Sino-Japanese war which necessarily disturbed the commerce between the

(Continued on page 418)

Progress in China's Hinterland

In an effort to ascertain the nature and the extent of activities being carried forward in the deep interior of China where the Chungking Government has been striving to overcome the immense handicaps imposed by hostilities and create a new China remote from the country's seaboard, the reports of several travelers and observers have been assembled and are presented here in the following miscellany from which some idea may be gained of what those engaged in this vast work have done and what they hope to achieve. It is emphasized that all of these reports come from purely Chinese sources.

In conjunction with this particular group of reports, also by Chinese writers, is presented a record of activities and progress of industries within the occupied regions of China. The first of these consists of a report of operations through the months of July and August of the railways of The Central China Railway Company.

* * *

CHINESE engineers estimate that \$36,000,000 worth of gasoline and automobile parts can be saved each year and that much foreign exchange can be used for other purposes when the work in the Kialing river conservancy is completed. The 190-mile section of the Kialing River between Peisuicheng on the Shensi-Kansu border and Kwangyuan, northern Szechuen trading center, is to be dredged for junk navigation so that goods can be brought from Shensi and Kansu to Chungking more cheaply than by highway. Preliminary dredging is going on.

The 430-mile Kialing River has year-long traffic on the 240-mile section between Chungking and Kwangyuan. Junks carrying 30,000 catties can negotiate this part of the river even in the low water season. Ships carrying up to 20,000 catties will be able to ply the 90-mile section between Kwangyuan and Yangpingkwang in southwestern Shensi, while boats carrying 10,000 catties will sail the 100-mile section between Yangpingkwang and Peisuicheng after proper dredging.

Products from and to Lanchow now take the 500-mile highway from Lanchow to Kwangyuan via Tiensui and Hweih sien. From Hweih sien to Peisuicheng, projected head of water transport, is only 21 miles while from Hweih sien to Kwangyuan, the present terminus, the distance by highway is 250 miles.

Therefore, if goods from Lanchow can be loaded on junks at Peisuicheng instead of Kwangyuan, they can save 230 miles of highway transportation and the transportation fee for each ton of goods between the two points may be cut down from \$230 to \$33.

Goods from Paochi, western Shensi railway terminal, to Szechuen now go by the 250-mile highway to Kwangyuan by way of Shuan shihpu. But if brought to Peisuicheng by way of Shuan shihpu and Hweih sien instead of Kwangyuan for junk transportation, then they can save 135 miles of highway transportation and \$100 per ton in shipping.

Merchandise from southern Shensi and northern Hupeh now follows the Han River to Hanchung in southern Shensi and is brought down to Kwangyuan for water transport by a 120-mile highway passing through Liehchingpah. But on the other hand, Liehchingpah is only 15-mile from Yangpingkwang on the Kialing. Therefore, if the freight is brought to Yangpingkwang for water transshipment, it can save a motor trip of 45 miles and \$36 per ton in transportation charges.

If one sets the transportation capacity of the Kialing at 200 tons of goods a day, the dredging of the river will save about \$500,000 a month or \$6,000,000 each year. The cost of the dredging of the 190-mile section is estimated at only \$300,000. The construction of the 20-mile Hweih sien-Peisuicheng, and the 15-mile Liehchingpah-Yangpingkwang highways costs only \$800,000. Besides, with easier river communication, more goods and men will take this route instead of following the highway from Kwangyuan.

The Yellow River Commission is also doing survey work on the upper part of the Kialing and the Tiao River in Kansu, which flows into the Yellow River, with the intention of linking these two rivers to give direct water communication between Lanchow and Chungking. It may be noticed that the upper streams of the two rivers are only three miles apart. It is

estimated that this piece of work, including a canal and dredging operations, will cost \$6,000,000.

American Trucks on Chinese Highways

A thousand American trucks, first earnest of American aid to China will shortly go into service on the highways of China. Rolling over the roads to the coast, these trucks will carry each month thousands of tons of wood oil to waiting ships to be carried away to the voracious American market. Returning to China, they will bear gasoline, machinery, medical supplies and other American products purchased with the U.S. \$25,000,000 credit of last December.

Directing the entire network of economic activity that stems from the American credit is the Fooshing Trading Corporation, a private Chinese corporation, capitalized at \$10,000,000. It exports wood oil to cover the credit, imports the materials purchased by the credit, and it has set up an independent transportation system in order to discharge its functions to full efficiency.

The Fooshing Corporation through its American agent, the Universal Trading Corporation of New York, makes and has made the bulk of Chinese purchase from last year's American credit. To cover the credit, the corporation has undertaken to supply the American market with wood oil in increasing quantities for five successive years.

One thousand trucks of the finest American manufacture are at the command of the corporation, ready for transportation service at the ports of Rangoon and Haiphong. In order to ensure successful operation of the service, the corporation has engaged over 600 mechanics and drivers from Singapore and Shanghai. They have patriotically offered their services for the development of Free China and will give the corporation a trained, reliable staff. Two American transportation experts are also employed to give technical assistance to the mechanical staff.

The corporation's plans are fully developed. About one hundred trucks are already in operation in Kwangsi, carrying oil from Kwangsi centers to the French Indo-China railhead. Within the month, the other 900 trucks will swing into service, carrying oil from the interior collecting centers to Kweiyang, where the service will split into two routes,—to Kunming, and the other to Chengnankwan. The company has erected repair shops, service stations, storehouses and dormitories along the routes. It is estimated that over 4,000 tons of cargo can be carried to port or railhead each month, thereby relieving by an almost equal amount the heavy burden that the 2,000 trucks of the Southwestern Transportation Company have up to now been carrying.

Three American highway engineers, invited by the Ministry of Communications, will soon arrive in Chungking to make a thorough study of China's road conditions. They are Messrs. M. E. Sheahen, A. B. Bassi and C. W. Van Patter.

They will set out to tour several networks in the southwestern and northwestern province, and make recommendations for improvement. One of the engineers will then return to the United States, while the other two will most probably stay in China for a longer period to advise the Chinese Government on transportation problems.

Water Power Projects in the South-west

As part of her program to develop the southwestern provinces the Chinese Government is working on three large water power projects, expecting to produce more than 100,000 kilowatts of cheap power to turn the machines in hundreds of Chinese factories.

Two of these hydro-power projects are in Szechuen, and one in the neighborhood of Kunming in Yunnan. In one of them, a modest beginning has already been made. In the case of the other two, surveying will soon be completed. One of them is to have a capacity of 60,000 kilowatts while the other will have 30,000 kilowatts.

The largest and most hopeful project is that one on the Tatuho, or the Copper River, in western Szechuen. The average flow of the river is about 1,200 cubic meters per second, with an ordinary

minimum flow during the winter of not less than 350 cubic meters per second.

Above Tungkaitse, a small town on the river near Kiating, the river has a drop of 580 meters in a stretch of 160 kilometers. What makes the river particularly valuable for hydro-power is the fact that its water level at Tungkaitse is 84 meters higher than that of an adjacent river. Between these two places, the shortest distance is only seven kilometers. By driving a tunnel through the interposed mountains and by diverting the Tatuho current to Mapienho through it, a gross head of 84 meters can be gained.

Mr. Frank P. Fifer, a hydro-electric expert of Hugo L. Cooper and Company of America, after examining this site, suggested that if a high dam is constructed across Tatuho near Tungkaitse, raising the water level by 60 meters, and if a large part of the flow of the Tatuho, 600 cubic meters per second, is diverted to Mapienho, it will be possible to obtain some 850,000 h.p. at this single spot. The remarkable geological formations there permit the construction of such a dam. Mr. Fifer was so favorably impressed that he compared it with the widely known hydro-electric plant in U.S.S.R. and called it the "Dnieper of China."

A 2,000-Year Old Engineering Feat

Two thousand years ago a Szechuen Governor devised an irrigation system 40 miles north-west of Chengtu, that still operates to produce a \$100,000,000 annual agricultural yield. All the principal features of this water conservancy work including the Tu Kiang Dam are well preserved at Kuanhsien, where the Min River water is still periodically controlled by the opening and closing of the dam.

The opening of the dam in April this year was marked by one of the biggest carnivals in recent years. More than 40,000 people including Government officials and hydraulic experts attended. The 40-mile highway between Chengtu and Kuanhsien was enlivened with the continuous passage of motor-cars and buses from Chengtu and Chungking. The entire city of Kuanhsien, where the ceremony took place, was beflagged, while milling crowds filled the streets.

Religious rites were held in the Dragon-Conquering Temple, after which the band and choir of pilgrims, led by two farmers carrying a roasted pig and goat respectively, marched along the bank of the river and finally arrived at Erh Wang Temple.

After these religious rites, the dam-opening ceremony took place on the river bank. Here, a platform was erected, where the party ceremonies were held. Mr. Ho Pei-heng, Szechuen's Reconstruction Commissioner, was among those who spoke on this occasion. The speeches were followed by a signal, whereupon the laborers cut down the wooden tripods, which allowed the water to flow slowly into the Inner River.

This ancient engineering work is one of the chief factors responsible for the fertility of Chengtu's golden delta. Triangular in shape, the delta covers a total area of 3,500 square kilometers. In this triangle which has Kuanhsien as its tip and Kingtang, Chengtu, and Hsintsin as its base, there are estimated to be over 850,000 acres of farm land which benefit from the irrigation structure.

According to legend, confirmed by a geological survey, this delta was in prehistoric times a lake. The Min River emptied into this lake, but because of the large quantities of mud and stones washed down from the high mountains by swift currents, it was transformed into a rich plain by constant silting.

Not until 2,000 years ago did this river become a source of wealth. Originally responsible for the irrigation structure was Governor Li Ping appointed to Szechuen by the then feudal state Tsin. His work was completed by his second son, Erh Long, and ever since no serious drought or flood has caused this delta to suffer.

Chinese farmers have built several temples along the banks of the river and for generations have offered sacrifices to the immortal father and son.

Reinforced concrete being a modern invention, Governor Li created his system out of the materials he found on the spot, egg-shaped gravel stones, bamboo and wooden poles. Some distance above the Tu Kiang Dam, he built the "Ten Thousand Feet" dyke to direct the current to the triangular dyke in the middle of the river. Built of rock, and protected by basketfuls of egg-shaped gravel stones, the triangular dyke splits the flow into two channels, the Outer River and the Inner River. This dyke is now of reinforced concrete.

Behind this triangular dyke is another long dyke to direct the current. Two additional overflow dykes stand further below

so as to divert excess water in the spring from the inner river to the outer, and to divert it again from the outer to the inner in the dry season.

Between the two overflow dykes is an iron pole which Governor Li erected to mark their height. In the 2,000 years that have followed, this height has been always maintained. His final instructions, engraved on a stone tablet, "Keep your dykes low but dredge deep," have been kept.

In the dry season, a dam is first constructed across the mouth of the Outer River. Water is prevented from rushing into this channel by means of basketfuls of stones and reeds held together by wooden tripods. After dredging and repairs, a similar dam is erected across the mouth of the Inner River. The work along the Inner River channel is usually completed in April when the dam is opened by the simple device of cutting down the tripods and removing the reeds. If more water is needed, more tripods are pulled down.

How flawless were Governor Li's findings and how sound was his knowledge of the currents and the irregularities of the river have been proved by the lasting effectiveness of his system. Recent studies by hydraulic experts are reported to have endorsed the scientific value and economic utility of this conservancy work.

Plans, are, however, being made for the further development of the system. The construction of a hydraulic power plant. The maintenance of the water level to allow steamers to ply between Chengtu and Chungking, and the erection of water gates are among the items enumerated in the plans.

Sericulture in Szechuen

Chinese sericultural experts of the seacoast are now converging on Szechuen Province to make it once again a leading silk center of the nation.

Toward the end of the last century, Szechuen silk held an important place on the world market. Since then, its production, after having reached a maximum of 30,000 quintals which was valued at more than £1,000,000, suffered a rapid decline to a low of 500 quintals in 1931, because of the increased use of artificial silk and the production of silk by other countries.

The organization of the Szechuen Silk Company in May, 1937, which intends to promote scientific sericulture, has brought new life to the depressed silk industry in the hinterland. Initial success has already been made as the 1938 production of improved silk doubled the 1937 figure. Of the 1938 output, which netted the Szechuen producers \$15,400,000, only 800 quintals were used by the native filatures, while the rest was all exported.

To-day in the offices of the Szechuen Silk Company a detailed three-year sericultural improvement program has been drawn up, which, when fully carried out in 1941, will increase the production of silk to ten times the level of 1938. The whole program which will cost a total of \$25,000,000 for completion will be an excellent investment, according to the officials of the Company, since in three years' time, Szechuen's silk production will be increased to a value of over \$50,000,000 annually. The Company which is capitalized at \$3,000,000 is negotiating with the banks for a loan of \$3,000,000 for distributing improved seeds as well as gathering cocoons.

More than 315,000 sheets of seed have been distributed for spring rearing to different districts in Szechuen by the Company's trucks. It is expected that the cocoon crop this year will total 9,000 quintals which will be four times last year's production. To protect the producers, the Ministry of Economic Affairs, the Provincial Government, and the Foreign Trade Commission have stabilized the domestic price of raw silk at \$1 a catty. Meanwhile, a Silk Fabrics Trading Company capitalized at \$200,000 and representing a joint enterprise of the provincial government and the leading merchants has been organized to boost the export of Szechuen silk products.

According to the three-year program of the Szechuen Silk Company, which is a joint concern of the native silk dealers, local merchants and the Szechuen Provincial Government, the production of raw silk will be increased from 9,000 quintals in 1939 to several times that amount in 1941.

The increase in the output will enlarge the present organization considerably. Silk filatures will be increased from six at present to nine three years later, the number of reeling machines will grow from 3,610 to 4,864, and the number of experimental nurseries will jump from 70 to 110 during the same period. The expenditure

of the company for furthering the program in Szechuen Province will grow from \$6,500,000 in 1939 to \$9,500,000 in 1931.

Agricultural Products Increased

To make the country self-sufficient in food supplies and to improve the quantity and quality of her normal export products are the two wartime aims of Chinese agricultural policy.

For the promotion of this twofold program, the Government has been actively distributing superior varieties of rice and other grains and persuading farmers to plant wheat and cereals in place of tobacco, cotton, rape and other crops. Over 100 experts have been stationed throughout a wide area to give technical assistance to the provincial authorities. Institutions have been established to finance irrigation and drainage work and to help increase production.

As a result of these activities, increases in the 1937-1938 winter crop over the preceding year were registered. In the 14 provinces, namely Ninghsia, Chinghai, Kansu, Shensi, Honan, Hupeh, Szechuen, Yunnan, Kweichow, Hunan, Kiangsi, Chekiang, Fukien and Kwangtung, the production of wheat, barley, field peas, broad beans, rape seed and oats at the last harvest is estimated to have risen by 53, 35, 61, 24, 11 and nine per cent respectively over the year before.

The total acreage of winter crops in these 14 provinces in the year 1937-1938 showed a general increase over that of the preceding year. Indicative of the success of the extension work undertaken by the Government, the rate of increase for the amount harvested is much greater than that for the average planted. The wheat acreage increased only four per cent; barley acreage even decreased one per cent; field pea acreage increased three per cent; broad bean acreage, four per cent; rape seed acreage, two per cent, and oat acreage, 13 per cent. The acreage for wheat and cereal crops will be increased also in Kwangsi, Kweichow, Kansu, Yunnan, etc. The increase in Kwangsi will be over 40,000 acres.

While various tests have been made in Kwangsi and Szechuen with a view to increasing rice production in these provinces next year, extension work with regard to rice has already been successfully carried out in Hunan. In this province, improved seed and fertilizers were distributed. Loans to the amount of \$6,000,000 were granted, and over 12,000 acres of fallow land and about 165,000 acres of glutinous rice fields were made to produce ordinary rice.

Measures devised for an increase in the quantity and an improvement of the quality of cotton production in Szechuen, Yunnan and Kweichow are being carried out. In Szechuen, over 6,000 piculs of seeds of superior Chinese varieties have been distributed this year. The amount is sufficient for sowing more than 13,000 acres. In Yunnan, the extension area of improved cotton seed is 8,800 acres this year. In this province Egyptian cotton has gained a successful foothold during recent years.

Through the efforts of the Ministry of Economic Affairs, China's southwestern provinces are making important contributions to the silk industry of China. For this year's spring rearing over 33,000 sheets have been made available to the Szechuen farmers, and 100,000 sheets for autumn rearing. Loans of \$500,000 have been granted by the Agricultural Credit Administration for the purpose of encouraging egg production and mulberry planting in the province, the Ministry, in co-operation with the Bureau of Reconstruction of Szechuen, has established two large mulberry nurseries in Szechuen, each having a capacity of producing 1,000,000 to 2,000,000 saplings a year. In addition, 40 demonstration stations have been erected with the financial and technical assistance of the Ministry. Similar work is being pushed in Kwangtung, Yunnan and Kweichow provinces.

Despite the hostilities, the Chinese tea trade has made some gains. The amount exported last year was 406,572 piculs as compared to 372,840 piculs the previous year. The China National Tea Corporation organized for the purpose of conducting and promoting tea trade at home and abroad and assisting in the promotion and improvement of tea cultivation, is operating a factory in Anhwei, a tea experimental station and a tea station in Kiangsi and another tea experimental station in Hupeh. Its sphere of activity is being gradually widened to include the southwestern provinces.

The export of vegetable oils has registered a marked increase. The value of the exports has been increased from \$31,323,602 in 1934 to \$127,039,902 last year. In wood oil alone, a total of

1,029,789 quintals was exported last year as compared to 687,383 quintals the previous year and 652,836 quintals in 1934. According to reports received by the Ministry of Economics, the amount will be still higher this year. The credit for the increase in both quantity and value of this product has been attributed to the work of the China Vegetable Oil Corporation which is now under the supervision of the Ministry of Economic Affairs. This Corporation has given special attention to the adoption of modern industrial methods of production and scientific research. The National Agricultural Research Bureau has discovered an excellent variety of tung trees in Kwangsi. A large number of these trees are being produced for extension purposes.

The general development of the different branches of agricultural work has been made possible by the reorganization of different agricultural organs by the Ministry of Economic Affairs. The Cotton Industry Commission, the Silk Industry and Filature Commission, the Model Forest Administration, the Central Animal Breeding Station, the North-west Animal Breeding Station and the National Rice and Wheat Improvement Institute were all abolished and their functions were taken over by the National Agricultural Research Bureau. This new bureau is charged with co-ordinating various phases of agricultural activity, including research, experimentation, and extension work.

New Tea Colonies in the South-west

With the exception of the wood oil industry, perhaps no other Chinese industry has a more remarkable war record than the tea industry which has not only survived but has thriven in the past two years.

Contrary to the popular belief that the war has deprived China of the bulk of her tea trade, Chinese tea exports in 1938 which totalled 91,767,000 lb. reached a five-year record. The export for January this year totalled 5,877,989 lb., 5,300,000 lb. of which went to Soviet Russia with whom China has a barter agreement.

Practically all of last year's tea crop in the famous Keemun and Tunchi areas was reaped before the invasion of the Japanese. Officials of the China National Tea Corporation are confident that the nominal occupation of the tea districts by the Japanese will not mean the loss of the harvest, as tea is usually cultivated in the high hills of the coastal provinces that are completely dominated by Chinese guerillas. The most the Japanese can do is to blockade the routes that the Chinese have to use for shipping out the tea; but even then it is believed, the natives will be able to avoid the enemy sentries by going through roundabout paths in the mountainous regions. China counts on a total production of over 70,000,000 lb. for 1939 from these districts.

Meanwhile, in the interior, the Chinese authorities are preparing for the worst. They are studying the possibilities of making interior China, particularly Yunnan Province where more than 5,000,000 lb. of the famous P'ueul tea are produced annually, another tea-producing and tea export center. Thus, China's possible losses of her tea crop in the coastal and central provinces will in due course of time be more than compensated by the products from her new tea plantations.

Plans for intensifying tea cultivation in Yunnan have been perfected. The China National Tea Corporation has concluded an agreement with the provincial government for carrying out this program.

Only the approval of Dr. H. H. Kung, President of the Executive Yuan and concurrently Minister of Finance, who himself takes deep interest in improving the popular P'ueul tea for export, is awaited to launch the whole program. Meanwhile, the National Tea Corporation has lost no time in establishing a chain of tea improvement stations in Yunnan.

The new tea plantations in Yunnan Province are fortunate as they will be under modern scientific supervision from their inception. It takes four or five years for young tea plants to mature, but experts believe that the period can be shortened if the farmers are trained to cultivate them scientifically. Another distinct advantage that Yunnan enjoys as a tea-producing center is its proximity to the international market. The total tea output of Yunnan is 8,000,000 lb. at present, half of which is exported to Burma, French Indo-China and Siam.

China's future tea expectations do not depend entirely on Yunnan Province. The hinterland provinces of Szechuen and Sikang have also an impressive annual production. Ninety-eight

districts, comprising more than two-thirds of Szechuen's territory, produce tea, and tea groves occupy no less than 100,000 acres of land along the valleys of the Yangtze, the Kialin, the Min and the Golden Sand Rivers. Szechuen annually produces 10,000,000 lb. of tea valued at over \$2,000,000.

Chinghai, the outlying Chinese province wedged in between Szechuen and Sikang in the south and Chinese Turkestan in the north, is another important frontier tea district, its annual production being over 6,000,000 lb. In addition, the region about Yah-an, an important city in Sikang Province, has a total output of 1,500,000 lb. each year. This city is also a trading center through which 10,000,000 pounds of tea pass annually. The Szechuen-Sikang provincial governments are considering the possibilities of making Kwansien, north-west of Chengtu, the manufacturing and trading center of brick tea for export to Soviet Russia, and, of making Yah-an the chief tea market for Sikang and Tibet.

Leather from Szechuen Goat Skins

Industry in pre-war China used \$7,186,400 worth of leather in 1936, of which \$4,336,000 worth of dressed hides came from her own hinterland. However, one fourth of the nation's leather came from foreign-owned tanneries. Actually China produced only 45 per cent of the leather she needed before the present war.

Since the Japanese occupation of the coastal provinces and the Central Yangtze Valley, most of the nation's leather tanning factories have been either controlled, occupied, or destroyed by the Japanese army, or have simply ceased to operate. Meanwhile, the importation of foreign made leather goods has sharply declined due to communication difficulties. But wartime China needs large quantities of leather goods. Army articles like belts, cartridge pouches, tool boxes, saddles, boots, and a number of other items all have to be made from dressed hides.

It is estimated that at least 1,000 tons of leather are required to supply an army of one million, and with 3,000,000 soldiers either in the front or at the rear, a minimum of 3,000 tons of leather are needed. Besides, civilian demands for leather are considerable. The nation is counting upon the interior provinces for her supply of leather in this emergency, and Szechuen, the nation's richest western province, is now playing an important part in the leather self-sufficiency program.

Reputed to grow everything under the sun, Szechuen produces also the World's best goat skins. It exported 20,907 quintals of raw hides in 1937, worth more than \$2,000,000, of these, 3,904 quintals were goat skins, 6,986 quintals were ox-hides, and the remaining 10,017 quintals were buffalo-hides. Besides, more than 10,000 quintals of hides were used locally.

Szechuen is also rich in the chemicals essential for tanning. Gallnut, valonea, Eicherrinde and Fichtenrinde are all plentiful in Szechuen and can be used for leather dressing. Valonea is so abundant that it is used as fuel by the local farmers. Its nuts contain from 25 to 30 per cent of tannin. The 10 to 12 per cent of tannin in Eichenrind, and Fichtenrinde has also been used for the tanning of sole leather.

With raw materials and chemicals so abundant in Szechuen, the Chinese authorities are making this western province the nation's chief tanning center. Already more than ten leather factories have been established in Chungking, China's wartime capital, and Chengtu, the provincial capital. The National Bureau of Industrial Research of the Ministry of Economic Affairs, besides giving technical advice to these existing tanneries, is also encouraging private concerns to join in the nation's leather self-sufficiency program. Booklets on leather tanning, together with plans for the establishment of tanneries, have been prepared and distributed by the Bureau.

Hydraulic Development in South Honan

Despite threats of possible Japanese attacks, hydraulic engineering work in Honan, is being carried out as planned. In the seven months ending this June, nine hydraulic systems irrigating 10,000 acres of land in the southern part of the province were completed by the Honan River Conservancy Bureau.

Through the utilization of these irrigation systems, which extend more than 64 kilometers, the production of the land benefitted will be increased by about 200,000 piculs a year, and the revenue of the administrative district—(composed of 13 counties) will be similarly increased by \$200,000 according to reports.

Meanwhile, the bureau will build seven more irrigation systems for several other counties. For this purpose the bureau has borrowed \$500,000 from banks to which the provincial authorities will add \$350,000 to bring the total to \$850,000.

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Activities in China's Occupied Regions

THE business condition of the Central China Railway Company for the month of August was reported to be far better than the previous month. During the month, the railways operated by the company transported 362,485 passengers and 151,360 tons of freight.

The following table gives the details of the business conditions of the railway company:

	Hainan Line	Haihang Line	Nanning Line	Sooka Line	Total
No. of Passengers ..	268,306	56,135	29,706	8,338	362,485
Revenue from Passengers ..	\$535,816	\$68,717	\$32,673	\$8,262	\$645,468
Amount of Freight ..	104,809	27,549	17,262	1,740	151,360
	tons	tons	tons	tons	tons
Revenue from Freight ..	\$366,033	\$80,515	\$73,628	\$5,833	\$526,019

The following table will give a comparison of the revenues collected by the railway company in the past few months:

Month	Total Revenue (Passenger and Freight Charge)				
	Hainan Line	Haihang Line	Nanning Line	Sooka Line	Total
	\$	\$	\$	\$	\$
May, 1939 ..	795,869	132,745	103,761	15,499	1,041,874
June ..	717,860	140,269	115,784	11,130	1,031,043
July ..	784,320	151,649	104,222	11,368	1,051,567
August ..	901,849	149,232	106,311	14,095	1,171,487

The Central China Railway, it may be recalled, was organized on April 28 in Shanghai, by the "Reformed Government" of Nanking and the Japanese interests. Capitalized at \$50,000,000, the "Reformed Government" contributed \$10,000,000, the

Japanese interests \$15,000,000 and the properties of the various lines were estimated to be \$25,000,000.

During the past four months, the railway operated the following lines in Central China.

- (1) Hainan Line (formerly the Nanking-Shanghai Railway)—334 kilometers
- (2) Woosung Line (formerly the Shanghai-Woosung Railway)—17 kilometers
- (3) Haihang Line (formerly the Shanghai-Hangchow Railway)—203 kilometers
- (4) Sooka Line (formerly the Sookow-Kashing Railway)—74 kilometers
- (5) Nanking Line (formerly the Kiangnan Railway)—207 kilometers

According to the railway company, two more lines will be operated by the company in the near future. They are: (1) The southern section of the Tientsin-Pukow Railway (the section between Pukow and Pengpu, a distance of 175 kilometers) and the Hweinan Railway (connecting Yukikow and Luchow a distance of 117 kilometers).

In addition to these railway lines, the company is also operating a number of bus services in the occupied areas of Central China. The business conditions of the bus services is reported to be very good during the month of August.

Report for July

The four railways operated by the Central China Railway Company transported 137,031 tons of freight from Shanghai to other cities during the month of July, representing an increase of 65,920 tons when compared with the month of June, according to the monthly report of the company.

During the month, 138,211 tons of freight were sent to Shanghai from various cities in Central China by railways of the company, representing an increase of 9,636 tons. when compared with the month of June.

The total revenue for the month, including freight charges was \$488,854 or a daily revenue of \$15,761. This represents an increase of \$8,532 when compared with the month of June. The following table gives the revenue of the four different lines for the months of July and June:

Railway Line	July Freight Charge	Others	June Freight Charge	Others
Hai-Nan Line	\$200,935	\$45,539	\$261,231	\$47,207
Hai-Hang Line	77,433	14,838	66,426	12,943
Soo-Ka Line	3,900	4,551	2,927	508
Nan-Ning Line	66,599	75,288	78,343	10,477

The following tables give the amount of freight sent to Shanghai and the amount of freight sent from Shanghai during the month of July by the four lines of the Central China Railway Company:

Railway Line	(Freight sent from Shanghai to other cities) July	June
Hai-Nan Line	88,543 tons	84,549 tons
Hai-Hang Line	28,460 ..	24,196 ..
Soo-Ka Line	1,287 ..	712 ..
Nan-Ning Line	18,741 ..	20,982 ..

Railway Line	(Freight sent to Shanghai from other cities) July	June
Hai-Nan Line	116,035 tons	107,520 tons
Hai-Hang Line	17,775 ..	17,214 ..
Soo-Ka Line	749 ..	725 ..
Nan-Ning Line	3,652 ..	3,116 ..

An ambitious plan has been adopted by the Central China Railway company to solve once for all the problem of providing living quarters for the large numbers of staff members and workers of four railways. According to present plans, the railway company will spent \$10,000,000 to build houses along the four lines.

Houses for the staff members and workers of the railways in Shanghai will be built in Kiangwan at a cost of \$3,000,000.

Factories Organized by Navigation Company

Numerous new factories and companies have been organized by Inland Waters Navigation Company in the past few months. The following table gives a few of the more important ones:

(1) Soochow Factory. This factory occupied an area of 2,000 ping (one ping equals 0.0330579 of a mow). One department of the factory is used to repair steamships, while another is used to manufacture agricultural machinery and implements.

(2) Shanghai Godown on Kwang Fu Road. Borrowing the Third Godown of the Shanghai Commercial and Savings Bank, the Company will accept freight for storage. The storage capacity of the godown is reported to be 5,000 tons.

(3) Shanghai Factory on Kwang Fu Road. This factory occupies an area of 3,000 ping and the factory building occupying 120 ping is under construction. This factory will build and repair steamships.

(4) Yangtze Tug Company. This company was established in Nanking in April, 1939, with a capitalization of \$200,000, of which 50 per cent has been paid up. The Shanghai Inland Water Navigation Company invested no less than \$20,000 in this company.

(5) Nanking Stevedore Company. Capitalized at \$200,000, half of the capital was paid up, of which the Shanghai Inland Waters Navigation Company invested \$10,000.

During the month of July, the Inland Water Navigation Company transported 27,972 tons of freight, of which 22,468 tons were transported along the Soochow Creek, 5,453 tons along the Whangpoo River and 51 tons along the Yangtze River.

When compared with the past month, the amount of freight transported by the company during the month of August decreased greatly because of the general poor business conditions in Shanghai. In August, the company operated 96 ships, of which 53 were owned by the company, while the remaining 43 were rented from others.

The Central China Electric Works

The Central China Electric Works is now operating 14 power plants and seven waterworks in the occupied areas of Central China. Organized in June, 1938, the company's business has greatly developed during the past few months.

In the month of July, 1939, the company generated 138,119 kw. power and 12,435,000 kwh. The following table gives the detailed condition of the different power plants operated by the company during the month of July:

District	Power in kw.
North Shanghai	34,500
Pootung	600
Hangchow	3,000
Anking	1,040
Changchow No. 2	3,500
Sungkiang	233
Soochow	12,700
Shanghai South	16,000
Nanking	30,000
Chinkiang	5,950
Changchow No. 1	17,100
Wuhu	2,160
Kiukiang	846
Hankow	10,500
Total	138,129 kw.

During the month of July, the company supplied electricity for lighting purposes to 54,648 household, of which 13 per cent were in Shanghai. Compared with the past month, the number of households in Shanghai using electric light of the company decreased by 59 but the number of households in other districts increased by 886 or two per cent.

During the month, 2,502 factories and households used power supplied by the company with a total of 31,557 horse-power. The number of factories using power of the company during July increased by 13 in Shanghai when compared with the previous month and increased by 17 in other cities. The amount of horse-power in Shanghai during July increased by 937 h.p. while in other districts it increased by 816 h.p. when compared with the previous month.

During the month, 392 households used electricity of the company for heating purposes, using a total of 1,367 kw. The number of households using electricity for heating purposes in July increased by 14, or 48 kw. and in other districts decreased by 8. 72 per cent of the households using electricity for heating purposes were located in Shanghai.

As to the waterworks operated by the company, they supplied 5,894,000 cubic meters of water during the month of July. The amount of water supplied in different cities during the month are given in the following table:

District	Amount of Water in Cubic Meters
North Shanghai	1,018,900
South Shanghai	1,118,110
Pootung	16,870
Nanking	979,887
Hangchow	143,863
Chinkiang	120,730
Hankow	100,000

Silk Industry in Central China

China and Japan supply the bulk of silk to the world market, according to reports of silk production investigated in 1934. During the year, Japan produced 349,846 tons of cocoons while China produced 37,612 tons of cocoons. The world production for the year was 465,699 tons. Italy produced 28,857 tons, French Indo-China produced 16,954 tons and Soviet Russia produced 15,200 tons.

As to cocoon production in China, Chekiang, Kiangsu, Kwangtung and Szechuen are the producing centers. In 1931, Kiangsu produced 32,825 piculs of cocoons, Chekiang produced 68,037 piculs, Anhwei produced 5,968 piculs, Hupeh 7,341 piculs, Hunan 3,402 piculs, Shantung, 6,565 piculs, Kwantung 59,882 piculs, Kwangsi 3,283 piculs and other provinces 5,670 piculs.

With the devaluation of the Chinese dollar in the Shanghai market and the increased price of silk in the international market, more silk has been exported from China recently. The price of XB20/22 white Filature Silk was \$760 in January 1937. But it increased to \$1,200 in August 1937, \$2,000 in June, 1939 and \$3,800 in August, 1939.

In 1909, according to records, China had 35 silk filatures with a total of 11,085 reeling machines. In 1916 China had 61 filatures with 16,692 reeling machines. In 1930 (April), China had 107

silk filatures with 25,395 reeling machines. Because of general world depression in 1930, only one filature managed to operate the factory throughout the year while the others suspended operations for several months. In 1931, China had 70 silk filatures and by August, 1937, when the Sino-Japanese hostilities broke out in Shanghai, there were 56 silk filatures in Shanghai with a total of 12,000 reeling machines. Only the Ewo Silk Filature managed to carry on during the hostilities.

With the withdrawal of Chinese troops from Shanghai, many silk filatures resumed operations and still many others were newly established in the foreign concessions of Shanghai. By February, 1939, there were 45 silk filatures in Shanghai with a total of 6,500 reeling machines. As it has been extremely difficult for the filatures to obtain dry cocoons from the nearby villages, these filatures have experienced great hardship and many of them were forced to suspend operations. The following table gives the silk filatures operating by the end of February in Shanghai (not including 15 filatures under construction at that time and others with details unknown):

Name	Location	Number of Reeling machines
Hwa Lum	Ferry Road	124
San Yi	Macao Road	120
Chien Yeh	Piangliang Road	196
Hung Foong	Ichang Road	540
Fu Lung	Piangliang Road	164
Ewo	Chengtuo Road	680
Ewo	Olapersto Road	520
Yu Foong	Singapore Road	156
Heng Sheng	Great Western Road	84
Heng Chen	Ditto	84
Shanghai	Ferry Road	132
Chen Lum	Ferry Road	200
Yueh Sin	Singapore Road	176
Lien Chong	Tokyo Road	170
Yu Foong	Chongping Road	112
Taishun	Chongping Road	56
Sin Yuan	Singapore Road	120
Chin Cheng	Ferry Road	60
Mei Lung	Pingliang Road	160
Teh Ho	Jih Hui Kong	218
Tung Chen	Changchiatu	300
Cheng Shing	Connaught Road	200
Yung Chong	Macao Road	224
Ho Foong	Chong Ping Road	48

As to the Central China Silk Corporation organized by Japanese interests last year, it operated only ten filatures around March, 1938. But now it operates more than 15 filatures scattered in Wusih, Soochow and Hangchow, the most important silk-producing centers of China:

Name of filatures operated by the Central China Silk Corp:

	Reeling machines
Wusih:	
Chen Yi Silk Filature	540
Chen Yuan Silk Filature	352
Ting Shen Silk Filature	320
Hung Yu Silk Filature	276
Fu Lum Silk Filature	248
Yuen Kong Silk Filature	208
Katai Silk Filature	304
Hoehing Silk Filature	360
Ta Sen Silk Filature	208
Ting Chong Silk Filature	512
Total	3,328

	Reeling machines
Soochow:	
Hwa Fu Silk Filature	220
Soochow Silk Filature	360
Total	580

	Reeling machines
Hangchow:	
Hangchow Silk Filature	240
Changan Silk Filature	288
Weichen Silk Filature	316
Total	844
Grand Total	4,752

The Central China Silk Corporation has its head offices at No. 50 Kiukiang Road, Shanghai, Capitalized at \$8,000,000, it was organized on December 10, 1937. By July, 1938, the capital was increased to \$10,000,000. The corporation has 129 silkworm egg experimental stations in Kiangsu and Chekiang Provinces with a total capacity of producing 3,375,000 eggs. In Kiangsu province, the corporation is in control of 214 cocoon hong with a total capacity of collecting 212,280 piculs of cocoons. In Chekiang, there are 100 cocoon hong with a capacity of collecting 159,400 piculs of cocoons.

Estimate of Cotton Production

Because of typhoon and heavy rain storms in the latter part of August, the second estimate of cotton production in Central China in the early part of September showed a decrease by 20 to 30 per cent when compared with the first estimate made in the middle of July, according to the Oriental Cotton Corporation.

The following table gives the first and second estimates for the current year and the production of 1938 in Central China:

(1) Production of Chinese ordinary cotton in Central China:

District	Production in 1938-1939 piculs	First Estimate for 1939-40 piculs	Second Estimate for 1939-40 piculs
Shanghai	93,000	93,000	65,000
Paoshan	11,000	34,000	25,000
Chuansha	47,000	42,000	30,000
Nanwei	144,000	229,000	165,000
Fenghsien	183,000	172,000	123,000
Sungkiang	55,000	65,000	46,000
Kingshan	14,000	15,000	11,000
Pinghu	27,000	24,000	18,000
Haiyen	1,000	1,000	1,000
Haining	1,000	1,000	1,000
Lanshan	42,000	30,000	28,000
Hanghsien	11,000	8,000	6,000
Total	729,000	714,000	519,000

(2) Taichang Cotton:

District	Production in 1938-1939 piculs	First Estimate for 1939-40 piculs	Second Estimate for 1939-40 piculs
Shangsu	73,000	131,000	97,000
Taichang	43,000	121,000	90,000
Kating	45,000	98,000	72,000
Kiangyin	17,000	26,000	21,000
Chingpu	16,000	31,000	26,000
Total	194,000	407,000	306,000

(3) Tungchow Cotton:

District	Production in 1938-1939 piculs	First Estimate for 1939-40 piculs	Second Estimate for 1939-40 piculs
Nantung	305,000	337,000	260,000
Haimen	136,000	142,000	93,000
Chitung	95,000	137,000	85,000
Tsungmin	54,000	89,000	55,000
Yu Kao	205,000	240,000	185,000
Tungtai	264,000	320,000	202,000
Yencheng	58,000	68,000	44,000
Funing	98,000	115,000	75,000
Taihsien	5,000	7,000	5,000
Chinkiang	38,000	50,000	38,000
Grand Total	1,258,000	1,495,000	1,042,000

The quality of cotton this year is not expected to be as good as last year because of the typhoon on August 29 and 30.

Rubber Factories in Central China

The management of nine Chinese rubber goods factories in Yangtsepoo and Nantao of Shanghai has been transferred to the Japanese while eleven other factories located in the foreign concessions of Shanghai are still operated by Chinese managements.

As to the nine Japanese factories, they have an aggregate capital of \$600,000 with a daily production of 1,500 pairs of rubber shoes, while the Chinese factories have a total capital of \$4,500,000 with a daily production of 15,500 pairs of rubber shoes. The Japanese factories employ about 300 workers while the Chinese factories have no less than 5,450 workers.

(Continued on page 418)

A Nisei in Formosa

By KAZUMARO UNO

Sozan, Formosa, September 1.—(By mail).—Here I am at a popular spa located not far from Taihoku, capitol of Formosa. The name of this spa is Sozan and it is famous for its sulphur hot-springs and draws thousands annually from the mainland of Japan seeking health and "rejuvenation." But the whole of Formosa offers hot-spring resorts and the semi-tropical climate is similar if not superior to that of the Hawaiian Islands. At least, my first impression was: "the Isle of Golden Dreams."

After I disembarked at Keelung several days ago, I have been impressed by the picturesque country-side, the people, and by odd experiences. This business of travelling and writing is beginning to tax my nerves and so I'm here at Sozan getting my share of rejuvenation. Bathing in sulphur water, reading, writing and sleeping, I've been thinking a great deal about Formosa during the past twenty-four hours.

For instance: What has Japan accomplished in Formosa?

Any fair minded person, viewing present conditions in this island annexed by Japan only 44 years ago, will admit that things have been developing rapidly and smoothly for the benefit of all the people on the island, not a selected minority, not even the Japanese alone, but everyone. For many, Formosa will prove to the world that Japan can accomplish the impossible because she has already—unity of East Asiatic peoples! People abroad, particularly in the United States, influenced by adverse propaganda are of the opinion that Japan is attempting the impossible in China by struggling against the highly conservative, nationalized, unwilling China for unity in East Asia. Is it such an impossibility?

How about Formosa, Korea, and Manchoukuo to-day? Here in Formosa, I have seen evidences that the inhabitants are more free, happier, more virile and enjoying a higher standard of living than ever before. Suppose she had been left alone to her own destiny?

"Asia in Ferment"

On all sides here in the Orient, there are signs of "Asia in Ferment," men and races fighting one another, struggling and revolting, preaching, reforming, and propagandizing—these are only outward symptoms of Asia's inner struggle for unity, the first requisite for national rebirth. And this unity is like a delicate plant; it thrives only in a congenial soil, well-watered with peace and justice. Nowhere in Asia, except Japan, has there been evidence of this unity. True, in China for a brief period in 1934, when Generalissimo Chiang Kai-shek and General Chang Hsueh-liang came to alliance, there was a faint sign of peace—but this later changed to anti-foreignism as the result of a warped nationalism and anarchic Bolshevism. And since, Japan is the nearest neighbor, she became the greatest sufferer. Take a glance at China's recent history, the history of her relations with foreign nations. Almost everyone has had their share of China's periodical and spasmodic anti-

foreign outbreaks and once, 39 years ago, all of them in a lump came in for a general onslaught. And now, Japan is struggling against disunity in China or for unity in China and East Asia.

I, an American of Japanese parentage, knowing little about my Fatherland, having had no Japanese education and being unfamiliar with my father's country and people, confess that I have quite a time understanding the confidence held by the Japanese people in regards the final outcome of the present hostilities in spite the fact that the rest of the world thinks otherwise. Admitting my ignorance, I can only recall a sound whipping, verbal, I received from a Japanese patriot who seemed to know all the answers confronting the issues faced by Japan in the Sino-Japanese conflict.

Essence of his explanations were to the effect:

Inasmuch as the Japanese are narrow-minded, insular, shy people, temperamentally they are incorrigible fatalists; within their hearts they believe themselves to be what inscrutable fates have made them to be. If Japan is at all great, as she sometimes calls herself, she knows her greatness to have been thrust upon her. At least, her present situation... she believes she cannot help, it was predestined. She thinks herself to being driven to do what she is doing by forces of circumstances to which she is committed. The question is: Is she doing her best to blight her own prospects and return to life of indolent self-complaisance from which she emerged eighty years ago, or is she taking the first heroic step toward building a mighty continental empire? No one can answer for certain. No one. Only... thousands of young men are being slain and tens of thousands wounded at the front, content in the consciousness that they are doing nothing but their duty to the Emperor and to humanity. They believe they are out not as conquerors, but as liberators, to secure for East Asia a new era of freedom and expansion. They feel that some nation has got to do this. If the Chinese cannot do it for themselves and for us (Japanese), and if the Western nations will not do it for us, then we have to do it ourselves as best we may—with what co-operation we may get from whatever quarters possible.

"Possibly by the time Japan has achieved her impossibility, unity in East Asia, we hope to see India has accomplished the conciliation of her racial elements so sadly symbolized by her caste system; that the United States will have 'melted' all her diverse ingredients; and that Europe, 'a great country divided into many contending rival states,' will have achieved her own appeasement. And so...

...may the final goal of human brotherhood be reached: a state of society in which mankind shall war only against their common foes in nature, physical and moral, which are still at large working havoc to human welfare in no small way."

Facts concerning present-day Formosa are testimonials of Japan's aims in East Asia.

Chinese in Formosa

Since Japanese annexation in 1895, Formosa became an important part of the Japanese Empire. It is not exactly known



Group of Formosan aborigines of the type that only a few years ago were savage head hunters

how early the Chinese migrated to Formosa from China, but before and since the annexation, the island's population is chiefly of those from China, although now, they are very much Japanese, physically as well as spiritually. In more recent years, and as far back as 1706, most of the Formosans of Chinese origin came from the region of Canton and Fukien Province. Prior to the outset of the present conflict, there were more than 50,000 Chinese nationals in Formosa. However, when the hostilities began 25,000 returned to their home in China, fearing they might be molested if they remained on Japanese soil; others returned with patriotic fervor in hopes that China would defeat Japan. Most of these Chinese who returned to China, especially the elder generation, are trying desperately to return to Formosa where they can enjoy peace and freedom and pursuit of livelihood with those 25,000 Chinese nationals who remained.

All now living in Formosa, are loyal Japanese subjects; although they are distinguished in three groups. First, Naichi-jin or "Mainlanders" from Japan; second, Honto-jin or "Islanders" who originated from China; and third, Ban-jin or "Aborigines" the original natives of the island. Hereafter, I shall refer to these people according to the first named classification: example, Naichi-jin for Formosan of Japanese stock and Honto-jin for Formosan of Chinese stock.

The Honto-jin are chiefly engaged in farming, export business, retail merchants and professional enterprises. Hundreds of Honto-jin hold distinguished and responsible offices in connection with the Formosa Governor-General, while their younger generation are receiving an education equal to that of the Naichi-jin and winning recognition in varied fields of academic and professional studies.

The total population of the island, according to latest figures available, is estimated to be:

5,330,000	Honto-jin
310,000	Naichi-jin
130,000	Ban-jin
25,000	Chinese nationals
2,000	Miscellaneous foreign elements
<hr/>	
5,800,000	Sum total population of Formosa

Obscure to foreign eyes is the assimilation of the Honto-jin and the Naichi-jin. Is it possible?

The Racial Problem

Admitting that these two people are as unlike as a Castilian Spaniard differs from a Chihuahua Mexican, assimilation is by no means a simple scheme. However, in spite of natural adversities and multi-fold tribulations, the Honto-jin and the Naichi-jin have progressed toward this common goal with unexpected rapidity and ease.

The younger generation are being educated and their knowledge and usage of the Japanese language is on a par with the Naichi-jin. Their appreciation of higher living standards and desire for cleanliness is evidenced in the new homes of the people and many bath houses in the Honto-jin villages. Their loyal patriotism for the Japanese Government is exemplified in a scene which I witnessed several nights ago in Taihoku when a division of Japanese soldiers were being



Young Formosan women weaving native cloth

given their send-off from Taihoku's station; thousands of Japanese, both Naichi-jin and Honto-jin, lined the city streets for blocks with lighted paper lanterns and waving the Hinomaru (Japanese flag) and shouting "goodbye" and "best wishes" to the soldiers whose stamping feet was deafened by the voices of the masses that shouted in patriotic fervor for their soldiers. In contrast, the soldiers marched in mute silence as tears streamed down their burnt cheeks. Often school children tugged at their trouser saying: "Heitai-san, odajini!" (Dear soldier, please take care of yourself!) And I knew, too, that many of these soldiers were holding back their tears of appreciation, remembering that back at home his own baby girl is praying for their father... that he may someday return safely after he had finished his duty to his Emperor and country. And of the thousands that participated in this gala send-off, at least fifty per cent of the Japanese were Honto-jin.

The greatest menace overcome by the Japanese in Formosa was opium, the scourge of China. Formosa, like the rest of China, had been damned by the sinister influence of opium introduced under pressure of British traders as early as 1843. However, to-day, less than fifty years after annexation by Japan, the opium problem has been brought under control and less than ten per cent of the original number of addicts remain under the influence of any insidious drug such as opium, heroin, morphine and cocaine.

How was this change brought about? Just a few words are necessary to explain this phenomenon. The Formosa Government took the problem into their hands with responsibility and determination to crush it with an iron hand.

Every wholesale and retail drug dealer was registered by the Government authorities. Then in turn, it was compulsory for each retail merchant to register each consumer. However, this was not enough. Every fraction of an ounce sold was carefully listed and the instruments used by the addict also were registered and examined periodically. Consumer making purchases must return the container with date of purchase. By means of this careful registration, the authorities were enabled to make a careful study of the amount



A jungle scene on the route from Taihoku to Urai. Note the push-car being operated by Honto-jin coolie

consumed by each addict and steps were taken next to begin reduction of supplies in such a manner as not to injure the victim mentally. In the meantime, hospitals were established exclusively for the care and examination of drug addicts. Schools began to educate the youths of Formosa to understand the dangers of opium and drugs. Consequently, and this is according to an official report, there are no drug addicts among the youths of Formosa and the average age of the addict to-day is close to fifty.

The Japanese have gone beyond educating the illiterate Honto-jin, for the children of Ban-jins, who less than fifteen years ago roamed the mountainous jungles of Formosa head-hunting, are now attending schools established by the Japanese Government. The Ban-jins live in the interior of Formosa in reserved areas which cannot be visited except by those who obtain permission from the offices of the Governor-General. Would you like to visit a Ban-jin settlement with me? Through the recommendation of Rear-Admiral Ryoza Fukuda of the Imperial Japanese Navy attached to the Governor-General, I gained the privilege of visiting a Ban-jin village at Urai, sixteen miles south of Taihoku, nearest "jungle" from the capitol of Formosa.



Another Formosan jungle scene showing group of native dwellings nestled in mountain forests

Jungle Paradise

After a brief bus ride from the Taihoku station, I arrived at Shinten, last stop before entering the restricted area, where I presented my pass to the police authorities. A police captain personally escorted me to the push-cart station and there he gave instructions to a Honto-jin coolie who was hired to "push" me into the Urai jungles. I asked for a second class car. The difference between the first, second and third class cars were: first class car were fixed with seat and roofing plus side water-proof curtains to protect the rider from heat and rain; second class car had only seat large enough for two people; and the third class car had no seat and passengers had to sit on the flat bottom of the hard push-car floor. All cars are pushed by coolies and only one coolie to a car regardless of the number of passengers on the car. Alone with my faithful portable typewriter, I started toward Urai knowing little of what to expect.

Once out from Shinten, the ride became a thrilling adventure... passing through a single short tunnel that dripped with water, I found myself facing numerous large, wooded mountains within walking distance. The enchanting landscape awakened me to the realization that I am alone. If only some of my friends back home in California could live this experience with me!

In the distance, high mountains covered with dense forests, unlike the scenery between Los Angeles and San Francisco where mountains and hills are so barren. A wide smooth flowing river winds itself along the narrow push-car tracks for miles, in which Honto-jin fishermen are spreading nets from characteristic boats in primitive fashion. Honto-jin women are working in the rice paddies nearby while the children are standing on the bank of the river tossing rocks at the small fishes that swim near the shore. Insects and wild birds are making melody in the jungle whose bamboo trees are homes of hundreds of insects unknown to the Occidental world, and there are trees that are strange to Western eyes, such as the tree which I passed by so often with roots beginning ten feet or so above the ground and twists itself into grotesque shape before plunging into the soft, mossy earth below. And there are banana trees with vivid green bananas in a bunch, unfortunately too premature to pick and eat. Imagine seeing dozens of white, fragrant Easter lillies growing wild on the hillside, many just turning brown and rotting under the merciless heat. Once, the push-car passed over a suspension bridge with wild canaries darting back and forth from one suspension wire to another. And these are scenes along the road to the "jungle" and home of the aborigines.

For miles and miles, the muscular young Honto-jin pushed me up along the mountainside and occasionally when the car came to an incline, he would give it a fast push and hop on to the rear end

of the push-car and we'd be speeding down grade for a moment or two and then he'd have to step off again and start pushing. The push-cars run on a single track line and sometimes when several cars loaded with fresh lumber or charcoal meet us coming from the opposite direction, it is necessary for me to get off while the man pulls the car off the tracks giving right of way to the heavier loaded cars. And at times, when turning a sharp bend at a mountainside, the fellow blows a small tin whistle that sends a shrilling sound echoing through the canyons. And through all this, my eyes jumping from one direction to another trying to take in the richness of the scenery about me... my mind is betraying the dumb expression on my stoic face as thoughts flash back to me every so many miles, thoughts surrendering to romanticism. I'm saying to myself: "If I ever get the right opportunity, I shall bring Her to this very spot and live this heavenly bliss all over again." Yes, if only I were a writer, poet, artist or musician.

And suddenly I awakened to realize that the nearby mountain top is shrouded in a heavy cloud. It is going to rain! The Honto-jin began to push faster, exerting more energy in his strides. He, too, seemed to be concerned about the approaching storm. Once, as a few drops of rain fell, he turned his head and said encouragingly: "Daijobu," meaning "Nothing to worry about." And in a few minutes when we had turned the bend in the mountain, we came into view of the No. 3 rest station and we didn't arrive here a minute too soon because once under the shelter of the roofing over the station, heavy drops of rain blanketed the mountain and jungle as new born streams began to rush down the hill into the deep canyon below to join the river which flows into the China Sea channel. Here, at the suggestion of the station master, I changed to a first class car with a roofing and side protections against the rain while the Honto-jin borrowed a straw raincoat... and the storm was thus conquered; otherwise, we would never have reached Urai before darkness fell upon the jungle.

The Village of Urai

The journey which seemed like a hundred miles was only sixteen miles when we reached Urai and when I looked at my watch, it was four hours after leaving Shinten, six-thirty. Urai is located on the south side of a jungle river between densely wooded mountains and the village consists of about three large wooden buildings and several small houses of Japanese architecture indicating that Japanese (Naichi-jin) live here. Connecting the push-car railway and the village is a high, long, suspension wire bridge. Crossing this bridge, it swings and creaks with the roaring rapids below to remind one that if the bridge snaps, a hard, cold

death waits below. Darkness was beginning to envelop the village as the rain subsided to a drizzle. Low powered electricity illumined the globe which barely shone through the mist. The darkness, roaring sound from the rapids, and being alone to find the Urai hotel... I began to imagine seeing ghostly objects which turned out to be a large rock beside the towering papaya tree and bamboo leaves swaying in the breeze making strange sounds. Finally I found myself standing in front of a long house with a light in front over a large slab of wood with black characters written plainly and significantly... I am ashamed to admit I could not read the sign.

I worked up enough nerve, what little I may have had left, stepped to the door and rapped the glass pane very loudly. Soon I detected sound of foot-steps inside. The door slid open with a rattle and a young Japanese girl poked her head out and seeing me, opened the door wider and invited me to enter. This I did before you could say "Jack Robinson." She sat on the floor of the clean hallway and bent her head down almost to the floor; this is a Japanese custom of welcoming a respected guest. Following a usual procedure of salutation, I was given a room, which, she told me was the best one in the hotel... later, I learned that I was the only guest in the hotel. This wasn't particularly good news to me. I crave company. I was lonesome.

In less than fifteen minutes, I had changed into a yukata (man's kimono), ordered my dinner to be served after a dip in the hot-spring bath, and was being directed to the bath, which is located halfway down the hillside from the hotel to the river. The bathhouse is about the size of an American garage large enough for two cars, the bath, itself, is almost like a miniature swimming tank with a depth of about four feet, and the water is extremely hot and one would have to rinse one's self for a time before being able to step inside and sit down, but the water is clean and transparent. Once inside the bath, my tired body seemed to melt away and beads of perspiration streamed down my forehead. Closing my eyes, I imagined my body to be cleansed, and mentally rejuvenated with new ideas and desires. Alone, I enjoyed the "purification" for nearly an hour and finally when I stepped out of the bath, my lean body was red as a Hadley rose.

After the bath, slipping into the yukata, I returned to the hotel to find the maid waiting with a handsomely prepared and tantalizing dinner. The combination neatly arranged on a large black tray in true Japanese fashion consisted of the following dishes: fried ai (Japanese river fish similar to rainbow trout), pork fried in shoyu (bean sauce), egg omelette a la Japonaise, clam soup, iced tofu (bean cake), pickled vegetables (egg-plant, cucumber, and radish), and steaming hot rice. With the exception of the clam in the soup and tofu, everything else was obtained right in Urai, according to the maid. During the course of the dinner I asked her about the Ban-jins: are there very many of them around here, are they still dangerous savages, and do you have any trouble with them? She smiled at me for a moment and answered as politely as she possibly could "Their village is located across the river and near the summit of the mountain. Quite independent, they cause the Japanese no trouble at all. There is a school for Ban-jin children located only a few hundred yards from this hotel. Even to-night, in spite of the rain, there is a class for the elder Ban-jin pupils beginning at eight."

A Ban-jin school to-night and near here... oh, what an opportunity for me, I thought and anticipating a visit to this school, I hurried through my dinner.

Taming of the Savages

With only a dim flashlight as my guide, I ventured from the hotel toward the lighted house across the river as the rain pitter-pattered on my well-waxed Japanese paper umbrella. Cross the wire suspension bridge in complete darkness as the sound of the roaring gorge below reminded me of the cold watery death beneath should an accident happen was no encouragement to me. But soon I reached the schoolhouse which I entered very quietly. A small room to the right of the main entrance was occupied by two people, an elderly woman and a younger man in uniform. I stepped in and bowed, saying in Japanese: "Is this the school for Ban-jin?" The man looked up at me from his desk and his face glowed in a welcoming smile: "You are the newspaperman from America?" he asked. I looked at him with a dumbfounded look on my face as I wondered how he knew. As if he had read

the expression on my face, he continued: "I received a telephone message from Shinten that you were coming and I was expecting you."

In course of few minutes conversation I learned that he was a Police Captain stationed here to supervise the school and look after the welfare of the Ban-jin, while the woman was a teacher who has been here for twelve years devoting her life to educating the Ban-jin children. I further pressed him with numerous questions when he invited me to inquire about anything that came to my mind concerning the Ban-jin. The gist of our interview was as follows... as closely as I can remember:

"How are the Ban-jin children accepting this idea of education and having to attend school?"

"They are beginning to appreciate an opportunity to learn. This can be judged by the fact that although the schools are not compulsory, all the Ban-jin children attend the schools voluntarily. Of course, when it comes to learning, they find it difficult. In the first place, what they are being taught, Japanese language, mathematics, practical arts and music are all new even to the parents who only until fifteen years ago were savage head-hunters. And another thing, the elder pupils who have attended school for several years and are able to speak Japanese fairly well take pride in this fact and hold superior complex over the Honto-jin coolies who can speak only Chinese and no Japanese."

"What do they like best in school?"

"Music. It seems to be the closest thing to their heart. They are very quick in learning Japanese songs."

"Is Japanese the only language you are teaching them?"

"Yes. They have no real language of their own. Every Ban-jin tribe has a language of its own and it would be very difficult to unite these people as they have eighteen different dialects in eighteen different tribes."

"What is the attitude taken by the savage parents?"

"Frankly speaking, the parents have been rather indifferent. However, when they realized how the children desired to accept Japanese education, the parents heartily supported their children's desire. In this connection, I am of the opinion that the Ban-jin people have a very strong love for their children, even stronger than the Japanese. They take good care of them, sacrifice unselfishly and protect them from any danger. But in spite of this, the Ban-jin are not spoilt as would be expected. I don't know just how to explain this."

"What kind of clothes do they wear?"

"These people have been and are still, to some extent, living very close to nature. It used to be that the children until they were in their teens wore no clothing of any kind, while the parents were also nude except for a small covering. To-day, the boys take pride in wearing a Japanese kimono made from a burlap-like material which is very strong and made by the Ban-jin women. The girls wear western styled dresses made from material purchased from Japanese or bartered from Japanese at a bartering station established in the Ban-jin village. As for their feet. Having, for many generations, been sturdy mountain climbers and consequently, they have large feet. Shoes, it would be impossible to fit. Even Japanese geta (wooden slippers) are inconvenient. However, the children wear them to school and once reaching home—they are put away until school time."

"What kind of homes do they live in?"

"Japanese have taught them to build strong wooden houses, replacing their former houses of mossy wood that were stuck in the ground with loose coverings over the top that dripped with water everytime it rained while the wind whistled through the sides from walls that swayed and creaked. Some of the newer houses have windows and even tatami (closely woven fiber floor matting) on the floor and each house has sliding walls separating various rooms of the house. Electric lights are being introduced replacing the old smoky, smelly, oil lamp lit by primitive fashion of friction of wood. And sanitation is being taught, particularly to the children as sickness resulted from unsanitary conditions that formerly existed in the Ban-jin village."

"How do they make a living?"

"The Ban-jin have been living a wild life since time immemorial, killing beasts in the mountains, eating roots and leaves of various plants, catching fish in the river. The art of cultivating food plants was unknown. When the Japanese realized the conditions under which the Ban-jin were living, they began to train them to grow their food. Rice was introduced. However, it was

not an easy task. At first, the natives were impatient in waiting for the harvest and when harvest time did come, due to lack of water and proper care, much of the crop was infested with insects and rendered valueless. But gradually, they became familiar with the proper cultivation of rice and at present they not only harvest a crop enough for their family, but produce an excess which they barter for food and stock with others who desire rice and cannot produce a crop of their own. Some grew an excess crop of potatoes, pick fruits from the jungle and catch fish which they bring to the bartering station for exchange of clothing and canned food. Canned meat, fish and fruits are the delight of the Ban-jin children. With the construction of dams, roads and installation of telephone and electric system in the mountains, many Ban-jin find work with the Japanese for which they are liberally paid. Exploitation of lumber and minerals in the interior has provided work for many. Therefore, without a doubt, the Ban-jin living standard has rapidly advanced and before long, they will raise themselves to the level of the Honto-jin and eventually to the Naichi-jin."

"What do the Ban-jin think of the Japanese?"

"As can be surmized, we are highly respected and some regard us as super-human beings. For instance, the Ban-jin practiced voodooism for injuries and sickness. Japanese introduced medicine which really brought happy results; food is grown in abundance and no more worries about drought in the jungle or having to cope with poisonous snakes in venturing into the jungle for fruits and vegetables; and homes have become stronger, sanitary, and happier. In so far as the Honto-jin have had relations with the Ban-jin for many hundreds of years, they have never won the respect and esteem as the Japanese have done within the last generation. Some of the Ban-jin have a superiority complex over the Honto-jin, but let it not be misunderstood that mentally, the Honto-jin are far superior and advanced than the Ban-jin who only fifteen years ago roamed the jungles in search of human heads."

In a Jungle School

It was after nearly an hour, that young Ban-jin boys and girls came out of the large room next to the teachers' study. "It is a rest period," the teacher remarked as my eyes wandered toward the pupils. The school begins at eight and ends at ten o'clock. There is a ten minute recess at nine. As I watched the children, I noticed that the younger girls stood before a large mirror placed near the door way, very diligently combed their hair one way and then another... finally, bushing it straight in pig-tail fashion, giving up in disgust to arrange the hair in a new fashion which might be different. Girls will be girls... in Hollywood or in the tropical jungles. When the bell was rung, indicating that the class would be resumed, the Police Captain invited me to sit in and watch the class for a while. I accepted eagerly. Once inside the classroom, the pupils stood up in respect to the Police Captain, who in turn commanded the class to bow to the visitor. They bowed low and gracefully in unison. I bowed in return... perhaps not as well as the pupils. I'm not used to the Japanese custom of bowing. I've been educated in the good old "How are ya?" and gripping one's hand firmly and shaking it. You know, the American way!

When the students sat down, the school-master gave a brief speech introducing me. He was saying something to the effect that I am a war-correspondent from America far away where the Americans developed a large country which was inhabited by Indians, aborigines of North America, and in doing so educated the Indians just as the Japanese are doing for you. The war-correspondent is here on his way to South China to see conditions down there and report them to people abroad. In other words, he is going to tell America what sacrifices Japan is making to liberate the illiterate Chinese from the tyrannical capitalistic militarists who have been exploiting their masses for personal greed. Just as here in Formosa, Japan is endeavoring to unite the East Asiatic peoples for their own common good. We are deeply honored with his visit, we hope he is not disappointed and he will come and visit us again.

It was a flattering speech and the students all looked at me with eyes that were eager to learn more about America and perhaps about me. I wanted so much to make a remark in return, but ashamed as I am to admit it, I was afraid that my Japanese would be worse than the Japanese known and used by these Ban-jin children and young people and that would never do. So all I could

do was to stand before them and bow slowly and in silence. It was enough, for the students in turn, stood again and bowed in respect. They probably knew how much I appreciated everything that was said. The school-master asked me to remain and watch the class for a while. Accepting his kind invitation, I sat before the class and the Ban-jin post-graduate student acting as teacher stood before the class and gave reading lessons on a Japanese song. Later, he sat at a small old-fashioned organ and began to play a Japanese tune. My eyes roamed through the room.

Mothers and Babies

The average age of the students in this class-room was eighteen, ranging from fourteen to twenty-five. Many of the girls in their early teens were mothers, their infants placed on their desk while the mother participated in the music lesson. Strange enough, in spite of the music and singing, the babies, some only a month old, were indifferent to the sounds, stirring occasionally. If the baby cried, the mother would take the baby to the back of the room and pace the floor once or twice and when the baby became quiet again, the mother returns to her former seat and continues the singing lesson. The song they were singing in Japanese is titled: "Nippon Seinen-dan" or in English, "Unified Students of Japan."

These girls, I learned later from the teacher, marry rather young and bear children right away. Physically very strong, most of the girls continue their domestic duties up to the day of child birth and, perhaps an amazing fact to Westerners, return to everyday doings on the day of delivery. And all this, without assistance from medical doctors.

While on the subject of Ban-jin women, I would like to mention another feature about conditions now existing among these people. By virtue of a decree issued by the Japanese authorities, no Ban-jin man or woman is permitted to inter-marry. This is impartial to the welfare of the Ban-jin. This restriction will preserve the Ban-jin race thus saving them from the tragedy experienced by the native Hawaiians and American Indians. To begin with, Ban-jin women are fewer in number than men and if these women inter-married with Honto-jin or Naichi-jin, trouble would brew between the Ban-jin men and other Japanese. However, in the case of the reversal, that is, Ban-jin men marrying Honto-jin or Naichi-jin women, this is also quite impossible because these women are of superior quality intellectually. Therefore, to prevent any misfortune for any of the three parties, the law officially protects the welfare of all.

Price of Liberation

"Nippon Seinen-dan" sung over and over again in monotonous rhythm made me sleepy after the exciting adventure through the "jungle." Lowering my head to hide my tired eyes from the students who were enthusiastically singing the melody in various tones. Before I knew what I was doing, I was dreaming about America... imagining what the early American settlers had to go through in coping with a similar problem, taming the American Indians. Perhaps, in the case of the Indians, it was more tragic than for these Ban-jin, for the Indians gave resistance before awakening to the dawn of a new civilization brought by the White Man and consequently, in the resistance much bloodshed was necessary. With the Ban-jin, resistance is practically nil. In China to-day, in awakening the millions of illiterates, blood is being poured... but, the Japanese are paying a dear sacrifice for tens and thousands of their men are being killed. However, each soldier dies knowing that he is part of a gigantic, epoch-making movement to liberate the masses and bring about a realization that unity and co-operation of the East Asiatic peoples is essential for establishing a common self-respect and self-subsistence. And these vague thoughts formulated itself in my mind to the tune of "Nippon Seinen-dan" and then mingled with a tune of "America, the Beautiful"... subconsciously, I was running a parallel between what Japan is doing in East Asia to-day and what the United States did on the North American continent in the past one hundred years. And what the United States accomplished in a hundred years is responsible for the glorious continent that it is to-day. Small percentage of illiteracy, free from exploitation by aggressive foreigners from Europe. Perhaps in the next 100 years or less on the Asiatic continent, there will be a similar civilization which can be compared with North America under the leadership of the

United States. Who can say? Needless to say, the sacrifices being made now on the Far Eastern front is, in the opinion of every Japanese, the foundation for the building of new order and in my travels through Central China, I have been encouraged by the fact that numerous Chinese of the intelligensia have grasped the significance of the Sino-Japanese conflict and have taken sides with the New Order.

My brief visit in Formosa has been just that: the realization that Japan is capable and fully qualified to unite East Asia, thus contributing toward world peace for there has been no war in Formosa, Korea or Manchoukuo since Japan assumed leadership over these lands.

Early the following morning, I took another bath in the hot-spring and after breakfast ventured over to the Ban-jin school again to watch the younger group. Like children of elsewhere, these boys and girls were playing hopscotch and tag. As soon as some of the pupils saw me, they came to me and bowed very gracefully saying: "Ohayo gosai masu" (A very good morning). Then they enjoyed staring at me. Visitors, I learned, were rare here. Before classes were called I asked the permission of the teacher to let me take a picture of some of the students. The teacher very courteously consented. The boys wore a kimono made from material woven by their mothers while the girls were dressed in a simple, light Western dress. As they stood ready to have their picture taken, I couldn't help but conclude that these Ban-jin were in some way related to our American Indians, their physical features were quite similar. After visiting with the children for a brief half hour, I reluctantly returned to the hotel and checked out, crossed the wire suspension bridge, boarded a push-car and made my way back to Taihoku and civilization... with a question in mind: How soon can I revisit Urai?

To-morrow, I am leaving Taihoku for Hoi How, Hainan Island via Navy plane for a short visit. In departing from Formosa, I do so with a sense of pride in this "Isle of Golden Dreams" where all peoples are prospering under a single government based on freedom and justice.

Never to be forgotten Formosa has given me new hope for Japan. A friend encouraged me with: "Germany having insulted Japan with an alliance with communist Russia; Europe embroiled in a new conflict; with the United States remaining neutral; with Japan and the United States enjoying a traditional relationship promoted by reciprocal trade... friendship between Japan and the United States is destined to improve for further correlative welfare." These words are those from my friend, Mr. John K. Emmerson, Vice-Consul for the United States Government in Taihoku, Taiwan, Japan.

Japanese Trade in the Philippines

(Continued from page 406)

Philippines on the one hand and China and Japan on the other." On account of the war, there was also a decrease registered in imports from China, although exports to that country only declined slightly.

It is feared that customs revenues of the Philippines will further drop this year unless trade between Japan and the Philippines is brought back to normal, and imports from other foreign countries increases.

The share of Japanese ships in carrying trade of the Philippines during the first half of 1939 reflected the decline of trade between the two countries during this period as the value of merchandise shipped to and from the Islands carried in Japanese bottoms dropped to P.41,170,458 this year as against P.46,811,280 in 1938. However, Japanese ships jumped to second place this year, replacing American bottoms which dropped to fourth position with a total value of only P.26,233,967 as compared with P.52,560,768 in 1938. Norwegian bottoms are now third with P.32,776,628 as against P.38,577,211 in 1938. British ships which have occupied the premier position in carrying trade of the Islands since 1937, maintained their place this year with a total of P.82,203,490, showing a decline from the 1938 first semester's figures of P.92,220,471.

The relegation of American ships to fourth position can be ascribed in part to the disruption of operations of some American

shipping lines to the Orient, notably the Dollar company. It is expected, however, that American bottoms may regain their dominant position with the resumption of operations of some lines and with the subsidy now given by the American government through its Maritime Commission.

The outlook of Philippine-Japanese trade is uncertain as long as the war in China continues, with the Japanese government exercising rigid control over foreign exchange and restricting the movement of imports and exports of Japanese traders. But with Japan at peace and no war to support, her diversified factories humming with renewed activity which need raw materials that abound in the Philippines, there is no doubt that she will again resume her increasing foothold in the foreign trade of these Islands.

Progress in China's Hinterland

(Continued from page 412)

Prior to the outbreak of hostilities, Shanghai rubber goods factories produced daily 49,000 pairs of rubber shoes. During the hostilities, one factory was moved to Hankow and nine were destroyed. The following table gives the damages done to the various factories during the war:

Name of Factory	Degree of Damage Done	Capitalization
Great China Ta Chung Yang ..	Slightly damaged	\$3,000,000
Chiao Tung ..		
Chun Hwa ..		
Yi Sen ..		
Kwangta ..	Partly burned	500,000
Min Sen ..		100,000
Great Shanghai ..		85,000
Ta An ..		100,000
Chen Tai ..	Completely burned	50,000
Chen Ta ..		400,000
Hwa Tung ..		35,000
Ta Lu ..		300,000
Yi Chong ..	Slightly damaged	45,000
Ta Fu ..		40,000
Chung Kuo ..		50,000
Ta Sin Yung ..		150,000
Ta Tung ..	Partly damaged	20,000
Hwa Sin ..		100,000
Shih Chieh ..		30,000
Wu Hwa ..		20,000
Chi Min ..	Slightly damaged	20,000
Yung Ta ..		100,000
Ta Kong ..		20,000
Shun Yi ..		20,000
Yi Ho ..	Completely burned	20,000
Shih Ta ..		30,000
Ta Shen ..		20,000
Nan Chen ..		20,000
Li Ya ..	..	20,000
Yung Ho ..		100,000
Total ..		\$5,145,000

Factories operating now and their capitalization are given in the following table:

Name of Factory	Location	Capitalization	Maximum Production Daily pairs of shoes
		\$	
Ta Chung Yang	Yangtszepoo ..	..	..
Hwa Hsin	Yochow Road ..	..	..
Shih Ta	Yangtszepoo ..	..	..
Yung Ta	Yangtszepoo ..	..	..
Shih Cheieh	Yangtszepoo ..	400,000	3,000
Ta Tung	Yangtszepoo ..	200,000	2,000
Yi Chong	Yangtszepoo ..	50,000	2,000
Chen Tai	Hongkew ..	300,000	8,000
Ta Tung	Yangtszepoo ..	100,000	2,000
Great China	French Concession (all below Chinese owned) ..	3,000,000	35,000
Yi Sen	Piangliang Road ..	500,000	7,000
Great Shanghai	Ditto ..	100,000	3,000
Hung Ta	Tokyo Road ..	100,000	3,000
Yi Foong	Great Western ..	60,000	2,000
Hwa Foong	Great Western ..	50,000	1,500
Wu Hwa	Piangliang Road ..	30,000	1,500
Min Sen	Ferry Road ..	100,000	3,000
Kwang Hwa	R. Kahn ..	30,000	1,000
Yuan Yuan	..	30,000	1,000
Ta Fu	..	50,000	2,000

Railway Work in North China

By Mr. W. O. LEITCH (*Late Chief Engineer and General Manager, Peiping-Liaoning Railway*)

I SHALL try, though it must be in a very condensed form, to give an outline of railway development in China, which may enable us to appreciate the present situation better. To describe the extensive railways in the Mukden and Harbin regions, and events in Sinkiang, would occupy more space than is available. To appreciate the railway position in China it is necessary to take into account some important points. A glance at the map may seem to indicate in places a fair provision of railways, but this is deceptive because all maps of China are necessarily drawn on a small scale. Actually China as shown by the red outline on the world map compares in area with Europe or the United States.

Roughly speaking the south-east quarter of China contains the former 18 provinces, within whose borders live 400 million people, the largest family in the world.

There are mountainous districts and arid areas sparsely peopled, and so on the fertile plains and along the navigable rivers the population is dense. There are not many long navigable rivers, there is the West river system at Canton, the Yangtze and tributaries in mid-China, and the Amur and tributaries in the north. The Yangtze is the fourth river in the world for length, but the first for volume of water per annum; it is navigable for ocean steamers 600 miles to Hankow, for river steamers another 800 to Chungking and for junks 200 to 300 miles more.

There are other rivers, but as they are navigable for short distances they serve the purpose of harbors rather than means of inland communication and there is of course coastal communication, but even so there remained enormous areas without useful means of communication, other than rough roads, shallow rivers, small canals, or even packmen, surely a situation demanding railways, to connect interior areas with coast ports, or rivers. This was not a case of making the railway first, and waiting for emigrants to develop the country, as in many parts of the U.S.A., Canada and Australia; the people were there before the railway.

A very interesting historical factor is that 300 years ago a great Empire existed in China, with a high degree of civilization, and Europe knew very little about it. China was far away and out of touch with Europe. In Asia there were caravans travelling several times a year between trading points and by joining a caravan it was possible to reach China in two years, if you were lucky enough to survive the perils of the journey. Few reached China and fewer returned, the most notable of whom was Marco Polo whose account of China was disbelieved.

Although stray ships reached China at long intervals in the 16th and 17th centuries, the latter century was drawing to a close before the ships of the East India Company went regularly to Canton on an annual trading voyage. Even when the monopoly was abolished, and the palmy days of sailing ships arrived the captains and merchants were limited to a few selected spots like Canton and of the interior of China. A few knew China, but knowledge was not broadcast in those days. The Chinese merchants who received English cloths, for example, in exchange for tea, did not learn much in that way about England. The wonderful silks, porcelains and other wares brought to Europe by the ship captains were much admired but they did not bring home the actual conditions in China. The contact was so light that the condition

of isolation gave way very slowly, so that the days of steam were well set in Europe without a corresponding change in China.

In art, philosophy and literature, China occupied a high place but somehow in science and mechanics things moved slowly. Thus the first step in the direction of railways, a very small one, was made by British merchants in Shanghai, who laid down a two-foot gauge line a few miles long from Shanghai to Woosung in 1876. But misfortune overtook this attempt, since so much opposition was stirred up that the Chinese Government bought up the concern and dismantled it. The next step was in Tongshan, where the first effective railway was made under the ægis Viceroy Li Hung Chang. This railway was only a few miles of line to connect the Tongshan mines to a canal but over it was fought the battle of the gauge and whether locomotives should be permitted or not. To Mr. C. W. Kinder, the engineer of the line, belongs the credit for having held out for the standard gauge of 4-ft. 8½-in. and for constructing, against orders, a small shunting locomotive out of the colliery machinery, which was christened the Rocket of China in June, 1881, on the hundredth anniversary of the birth of George Stephenson.

For about five years no more was done. Then in 1888 the little mine siding reached Tientsin by gradual extension and at last there was the opportunity of showing what the railway could do. In the next ten years the railway reached Peking on the one

side and Shanhaikwan on the other, a total length of 265 miles. As a private company it could not finance extensions to the line and consequently became a Government line, but even then the main trouble was finance. It had taken twenty years to construct the line, and it became clear that outside assistance, both technical and financial, would be necessary if railways were to be built on a larger scale.



Lowering girder on to a bridge pier

The next phase was begun by Russia in obtaining from Li Hung Chang, when he visited Moscow for the coronation in 1896, a concession to put the Siberian railway through Manchuria. Attached to this concession were privileges which practically made Manchuria a Russian preserve. This made other countries sit up and there followed a great competition for railway contracts. The result of these was the pre-War railways. The principal lines made before 1900 were the extension of the original Peking-Shanhaikwan line to Newchwang and Hsinmin (British), the Siberian railway through Manchuria (Russian), the Peking-Hankow railway (French and Belgian), the Shantung railway (German) and the extension of the French Indo-China line to Yunnan.

The rebellion of 1900 introduced unexpected difficulties but thereafter additional loan agreements were made, the most important of which were the Lunghai, an east and west line, the Shanghai-Nanking, Canton-Kowloon, Tientsin-Pukow, Shanghai-Ningpo, and Hukuang railways south and west of Hankow. To these must be added the Kalgan line built by the Government out of the profits of the Peiping-Liaoning line. In the main this provided a series of lines radiating from the then capital to important points, plus an east and west line, the Lunghai. The downfall of the Manchu dynasty, followed by the Great War, brought further progress to a standstill.

The majority of these lines were built under loan agreements which provided for gradual repayment of the capital. At that



Here is the far famed Marco Polo bridge, lately brought before world notice as it marks the spot where the current Sino-Japanese hostilities had their beginning in North China in July, 1937. It is not generally known that this notable structure was built 870 years ago

time an investment in Chinese railways was rather an unknown quantity and so, to induce investors to come forward, certain provisions were made in the agreements for the employment of some technical staff and for the bondholders to be represented through their agents. This representation would have been little more than nominal if all had gone well but the early years of the Republic were very disturbed. There was a period of civil wars, most of the railways fell on very hard times, defaults occurred and the loan agents naturally endeavored to protect the interests of the bondholders. But any interference by foreign authorities was not popular in China. There was a pause in new works, partly because the new Republic had not settled down and partly because the Chinese were not willing to borrow on the former terms.

The railway engineers from each foreign country naturally followed their own practice. This did not matter so long as the railways were isolated but when they began to join up the want of uniformity became apparent. Fortunately with small exceptions the standard gauge had been followed, but many other matters hindered the exchange and repair of rolling stock. This was remedied in 1921 when the Government set up a commission which established standards and uniformity is now appearing. The number of separate railways has not been a very serious drawback, for the position was that the Ministry became not merely a legislative body, but the governing body, practically the head office for the National Railways, with the local Directors of the separate lines almost in the position of divisional superintendents. As opportunity offers probably some re-grouping will take place but in the meantime the control exercised by the Ministry on the loan agreement lines was quite effective.

The pause in new work was by no means time lost. It was one thing to arrange for financial syndicates to build railways but it was quite another to create a Chinese staff and workmen to operate them. Only a few officials could be sent abroad and the great majority of the staff, the subordinates and men, had to learn their work in China. The railways made in the closing years of the nineteenth century were invaluable for training men but the numbers were very limited. But the addition of the lines made before the Great War provided a better training ground and during the period of waiting a new generation of Chinese railwaymen grew up. As you know, a good railwayman cannot be made in a day; it takes long experience handed down from man to man to create good railwaymen.

Time was also necessary to develop a Government department of railway affairs. A Board of Communications was set up which had at first rather a political nature, perhaps unavoidable under the circumstances, but gradually the able men on the railways were brought into the Board. A good permanent staff at Nanking, was established. Accordingly when the civil wars ceased and the Government was able to devote its attention to civil affairs, the

fruit of years of waiting and accumulated experience was ready. For example, very good work was done by Chinese railwaymen on the completion of the Hankow-Canton line and in re-establishing the fortunes of the old lines after the misfortunes of the civil wars. The Boxer Indemnity has been of great help in the completion and restoration of the old lines and in other ways.

Other developments of great importance took place side by side with the railway development. China has had bankers longer than any other country, but not engaging in the activities of modern finance, such as issuing public loans or financing public works. Banks on modern lines, like the railways, had a hard time during the early years of the Republic but the leading institutions survived. At the same time mercantile business increased along the railways and the position of the Nanking Government greatly improved. The Minister of Railways, H.E. Chang Chia Nau, had previously been president of the Bank of China and this brought financiers and railways into practical co-operation. The

stage was set for a new era of railway work, with the promotion and financing of new railways in China, and participation of foreign capital on a basis more agreeable to China than it was possible to obtain under the old condition.

When Nanking became the capital it was the turn of the south and west for new lines. The British Hangchow-Ningpo completion loan largely helped to finance the completion of the Ningpo line and the building of the large Chientang river bridge near Hangchow, thus enabling railway connection to be made westwards from Shanghai. The Hangchow-Kiangshan railway, promoted by the provincial Government of Chekiang, was notable as being the first occasion on which Chinese Banks sponsored an important new railway construction. The Bank of China contributed five million dollars and attracted widespread attention to the prospect of using Chinese capital. Then came the agreement with a group of German firms to provide the imported materials required to extend the railway to Nanchang, payment being spread over a period of years. The Ministry of Railways and the provincial Government of Kiangsi financed the expenditure in China by means of a bond issue.

Then followed other arrangements of a like nature in which British, German, French, Belgian, American and other interests co-operated with Chinese banks, provinces, ministries or semi-official companies to supply materials for important new lines, among which were the extension from Nanchang to Chuchow (connecting with the Hankow-Canton line) and on to Kweiyang and later to Yunnan. At the same time the company-owned railway from Nanking to beyond Wuhu was improved and extended to Kweichow, giving more direct access to the new western trunk line from Nanking without going round by Hangchow, and enabling also a direct line to be made to Foochow. There was another scheme for a line from Canton to Meihsien which in time will extend to Foochow. A more direct line to Canton from Nanchang was proposed and another project for a line from a point near Hangchow through Kwangsi province to the coast.

In the west a railway was commenced between Chungking and Chengtu which will be extended northwards to join the Lung-hai line and southwards to Kweiyang. The Lung-hai line itself is gradually being extended westwards. These lines together with some others smaller will amount to over 5,000 miles and will almost double China's railway mileage. In addition to new lines, materials are being provided for improvements to some older railways, for new workshops, new bridges over the Yellow river, harbors at Whampoa near Canton and at Lienyun, the sea end of the Lung-hai line. Some smaller railways have been made by private initiative, such as the Hwai Nan line north of the Yangtze and opposite Wuhu.

Just as the old lines north of the Yangtze led to a great increase of trade so will the new lines to the south and west, and even more so under the peace and good government which are so

necessary to enable the railways to meet their financial obligations and to help later on, in their turn, to finance further extensions.

Although the finance conditions are not the same in every case, in general it may be said that loan service committees of the interested parties have been formed to supervise the payment of instalments. But the construction and operating work will be looked after by Chinese railwaymen from older lines, and when we recollect that these are only the second generation of railwaymen, I think that they are doing remarkably well. I am sure all fellow railwaymen will hope that the present unfortunate hostilities will not cause a serious interruption in the new railway program.

Bridge Construction Work

The small bridges are mostly built of concrete on piled foundations and there is nothing special about them but some of the 100-ft. and 200-ft. bridges may be interesting.

The Lanchow bridge is well known, as it was the first large modern style bridge to be constructed in China. It has ten spans of 100-ft. and five of 200-ft., with two of thirty feet in the approaches. The foundations were sunk by the pneumatic process, and the piers were made of limestone got from nearby quarries. This bridge has served its time, and is now being replaced by a stronger bridge.

In the case of a bridge that was made over a tidal creek, 28-ft. deep at high water, at first a very substantial temporary bridge was built of timber with sloping ice-breakers on independent piling. The permanent bridge was built by dropping stone ballast and rubbish through holes in the ice to form islands on which caissons were erected and sunk through the islands into the river bed.

The general method of erecting 200-ft. girders was by means of a sliding gantry on temporary staging, which set each member in place. In the case of 100-ft. spans, these were formerly erected on the ground and hoisted up by a similar gantry. In one bridge consisting of deck trusses a special plate girder half-deck span was put in to give the boats some extra feet of head room, but after the bridge was completed the dry season channel shifted away from the special span and never returned to it. Formerly the girders were assembled on the ground, but that method was abandoned in favor of completely rivetting up girders up to 100-ft. span in the workshop and conveying them along the railway on special transporting cars. At the bridge site two erecting cranes took up the span, ran it on to the bridge, the sleeper stacks were removed and the girder lowered into place, and so on span by span.

On one occasion, contrary to the usual practice of erecting the girder on the ground and lifting it up, the erecting trollies being



The Great Wall of China

elsewhere engaged, an engineer used a sleeper stack stage for erecting member by member. The girder was rivetted, but the bearings were not put under the ends. At night when only a watchman was present the stacks caught fire. The girder sank down until the sloping ends rested on the piers, but the fire continued, the girder expanded and so rose several inches in the middle. Eyewitnesses assured me the bottom boom was red hot. When it had cooled the girder still had a rise of two inches at the center and a sideways bend of two inches, but on being raised off the piers this diminished to about an inch in each case. As the girder heated and cooled gradually it did not appear to be damaged and deflection tests showed no difference from the adjacent undamaged spans and so it was left in place. The same process was used for 60-foot spans but with a simpler erector made out of logs projecting over the ends of ballast cars.

The general method of constructing the piers of these bridges is to erect a row of tripods over each pier site to handle the air locks, etc. In a land of cheap labor and scattered work hand-mixing of concrete is still largely employed and excellent concrete made, but in future as the improved standard of living increases wages, machinery will be used more.

An important link in the new railways from Shanghai to the south-west is the Chien Tang bridge near Hangchow. This bridge has sixteen spans of 220-ft., with approaches on each side which make up a total length of 4,590-ft. The upper deck of the bridge is a 20-ft. roadway with two 5-ft. sidewalks and the lower deck is a single-track railway. The depth of water varied from 10 to 70-ft. at high water, with a rapid current and an easily scoured river-bed. Of the main piers in the river, six were sunk to rock and nine on to piles 90 to 100-ft. long, driven below the river-bed. Concrete caissons were floated out, sunk on the piles by pneumatic process, the excavating being carried out partly by hand, partly by ejectors.

In the approaches are steel arches and reinforced concrete trestle work. This interesting and important bridge was designed and built by an engineering commission at the head of which was a Chinese engineering director, assisted by British and Chinese engineers and accountants.

Before leaving the subject of bridges, I should like to mention the Marco Polo bridge near Fengtai. The famous Italian spent about seventeen years in China, from 1273 onwards, and in his book of travels describes this bridge. As there are some inaccuracies in the old accounts the P.N.R. engineers at Fengtai decided to inspect the bridge.

The actual number of spans is eleven, varying from 44-ft. at the ends to 50-ft. at the center. The middle of the bridge is higher than the ends, thus forming a graceful and symmetrical



Front of the Peiping Station

bridge which is quite in accordance with the best ideas. The width of the roadway is 25-ft. Two large tablets at the bridge ends record the history of the bridge. One, erected in the eighth year of K'ang Hsi, states that the bridge was built during the Chin dynasty (1169) and was repaired several times during Yuan and Ming dynasties. In 1668, about 140-ft. at the north end of the bridge was damaged by a great flood but the damaged portion was rebuilt. The other tablet, erected in the fifty-first year of Chien Lung (1786), gives later information. After the tenth year of Yun Cheng (1732) the road surface became badly worn and someone suggested that it was necessary to pull down and rebuild the bridge. But on taking up the roadway the arch stones were found to be so firmly bonded by iron clamps that it was quite unnecessary to rebuild and so a new roadway was laid and the end slopes made easier. An inspection of the arches to-day shows that they are strongly made of large size stones and in fact the masonry work of the arches could not be done any better at the present time.

One of the features of interest is the balustrade or side walls of the roadway. These consist of marble slabs fitted in between masonry posts. At one end of the bridge the end of the balustrade is supported by stone lions and at the other end by stone elephants. On the top of each post of the balustrade there is a small carved lion and it was one of the old legends of the bridge that these were so numerous that anyone attempting to count them would go mad. There appear to be about 284 lions on the tops of the posts but there are small cubs under the paws or on the backs of the larger lions, so that the total number is something like 468. These all vary from each other in some respect. This carved balustrade is mentioned in Marco Polo's travels.

As the summer floods are quite bad, the fact that the bridge has stood since 1169 is a remarkable tribute to the skill of the engineers and masons of that time.

The Great Wall of China is two thousand years old and it crosses the hills in an extraordinary manner. When the railway was built public sentiment forbade touching the wall so that at Shanhaikwan the railway had to pass through an old gap through which flowed a small river and was made over the river on decking supported by steel piles driven into the river bed. After forty years the railway was being doubled and as sentiment no longer prevented the removal of a part of the wall a place was made for the river alongside the railway and the new bridge was reduced to two small spans for local drainage. Originally the wall had arches but these were gradually undermined and in the course of centuries the debris was washed away leaving a plain gap. While concrete foundations for these spans were being put in, the original piling of the arched openings in the wall was discovered which there is every reason to suppose is two thousand years old.

Floods and Washouts

Heavy rain in North China occurs in July and August but for any particular locality the incidence of the rainfall yearly is very irregular. Storms arise from typhoons farther south, and may break over Korea, or Manchuria, or the Tientsin area, or farther north or west, so that generally speaking, any area may suffer from damaging rains at intervals of a few years. There is no proper system of rain gauges throughout the catchment areas but here and there are a few isolated gauges. Most of the river channels are able to carry off a rainfall of one or two inches a day but in the cyclonic storms there may be five to seven inches per day, causing many overflows, and at intervals of, say twenty-five years, when a worse typhoon than usual occurs the rainfall may amount to ten inches in twenty-four hours.

In the absence of records, the fixing of rail levels and bridge openings is a matter of difficulty and frequently the recollections



Embankment breached near a bridge

of the "oldest inhabitant" about flood levels are found to be very erroneous. Preliminary errors were thought to have been rectified but in 1930 a flood occurred completely eclipsing everything in the previous forty years. In one instance the river flooded the country for miles on each side of the banks and underscoured a small bridge which led to a breach of the embankment resulting in an enormous scour hole under the railway, thirty feet deep and three hundred feet long. The adjacent country was all under water and repair work could only be carried on from one broken embankment end. All the quarries and shale heaps on the line were called on to supply hard material and special ballast trains were run for hundreds of miles. Five cars at a time were run to the broken embankment and unloaded and by means of floating stages gangs of men standing in line passed the stone along and threw it into the scour hole. After a stone embankment had been brought up to water level sleeper stacks were placed on it and the slopes of the stone bank completed by unloading from cars. Regular traffic was suspended for twelve days. But in many cases traffic can be resumed with a transshipment; where the gap is not too great and the rails form a suspension bridge, planks are laid on the sleepers and the passengers walk over. Such an event is taken quite philosophically by all concerned as being unavoidable. Fortunately these disastrous floods are rarely succeeded by another in the same year, so a deviation is often practicable.

In another case a bridge of twelve spans of one hundred feet was severely affected by the floods. For thirty-one years no flood had risen to the girder level but then came a new "record" when the water rose above the bottom boom of the truss girders. This would have caused no harm but it so happened that this abnormal flood washed away some plantations of trees far above the railway. These caught on the bridge, which of course increased the pressure of the water on the girders and broke the bed plate bolts. Most of the girders were displaced from their proper bearings but were prevented from being pushed off the piers by the concrete work of the pier top which had been made so as to act as a "stop" to the girders. But the force of the water was sufficient to tilt some girders weighing sixty tons each. During the dry season a deviation was made and the bridge raised six feet so that this should not occur again, but this involved some disadvantage as the grading was not as good as before.

In other cases bridge piers were carried away, the girders dropping in the river. This style of washout occurs through the overflow of larger rivers which cause unexpected currents under the smaller bridges. The large bridges are made with deep foundations able to resist floods but it would be financially impossible to build all bridges in that manner and so some risk has to be taken. In a somewhat similar case a sixty foot span plate girder weighing

twenty-five tons was rolled along by the current two miles from the bridge. It was thought to be sunk and lost but to the surprise of the engineer making temporary repairs, a contractor turned up who offered to haul the girder back and he so did with the aid of nothing but ropes, wooden rollers and man power.

On another occasion an interesting example of handling a girder with limited means occurred. A washout occurred in which a pier was lost and a sixty-foot plate girder weighing twenty-five tons fell into a deep scour hole beside the bridge, the girder being twenty feet under the water surface. In such a situation cranes, steam winches, and other machinery would be used if available but none was available. A gang of river boatmen undertook to retrieve the girder and they did it as follows.

Logs of wood were available with which to form rafts. Native divers without diving apparatus fixed chains to the girder bracings. The railway lent some long capstan screws, the only modern equipment used, which were mounted on the rafts over the girder, and by means of which the girder was lifted a few feet and moved nearer the shore, this process being repeated until the girders were in shallow water. In order to pull the girder out of the pond a large capstan was made out of a tree trunk and a tripod. The tree trunk acting as the capstan barrel was set up vertically with the lower end in the ground, the top end being supported by the tripod. Capstan bars were lashed to the barrel with ropes and with this primitive arrangement the girder was hauled out of the water. Moving heavy weights without special machinery is a lost art in many countries, but not in China.

An example of simple methods of doing work without elaborate machinery was an apparatus for putting down bore holes. The boring tool was a short length of thin pipe with a flap valve on the end, which was suspended on a rope made of bamboo strips connected by simple wedges. The boring tool was raised or lowered by winding the bamboo strip round a treadmill wheel operated by a man walking on the inside. In use the tool was suspended from a "bow," the "spring" of which raised the tool a foot or so after it had been pushed down by hand. With this very simple apparatus bore holes for water supply could be sunk five hundred feet for pipes eight inches diameter. For greater depths more modern machinery is required with a corresponding great increase in expense.

Washouts occur at other places than bridges. An embankment along a river side was made twenty feet above low water level, which was thought high enough. So it was for thirty years and then the water rose above rail level and turned the track upside down. This embankment had been well protected by stone and so it survived, which was just as well as it was a mile long in the river bed. In another place the railway was constructed several hundred feet from a river and on the convex side of a curve. A single-span bridge was made for small local drainage. A big flood came along, wiped out the several hundred feet of land and the railway, lowering the previous field level to the river bed level. The small bridge was left in the air, with the piles showing. In the same washout, instead of being on dry land clear of the river, the railway found itself right in the widened river. Another overflow



60-ton girder tilted by force of flood current

from a big river near a station caused such a flood that car bodies were floated off the bogies and left strewn about the station yard.

In 1930 all flood records of 50 years were broken. At the end of July over one hundred washouts of various kinds occurred over two hundred and fifty miles. Very few materials could be forwarded except from the two ends of the damaged area and so two large gangs worked continuously from each end, advancing with the repair trains from one washout to the next. Through traffic over the part of the railway affected was not resumed for one month.

Liu River Silt Deposits

About forty miles west of Mukden, near the town of Hsin Min, is the river Liu. for ten months of the year an innocent-looking stream about two hundred feet wide and two to three feet deep but in July and August, in years of heavy rain, one of the most troublesome rivers.

The river rises in a district about one hundred and fifty miles above the railway where the soil is sandy and easily eroded. Before the railway was made, there was not much cultivation but after the railway provided means of getting surplus crops to the market, an influx of cultivators scraped off the grass and bush which had formed a natural protection to the surface, with the result that the erosion rapidly increased. In the upper part of the river the grade imparted to the water a sufficient velocity to enable it to carry the silt but on reaching the flatter country where the railway is situated the current slackened, the silt deposited, the channel became choked, and the river overflowed and shifted about over a fan-shaped area. Above the railway where the channel is definite, in years when cyclonic rain-storms strike that part of the country, the river, for a day or two, fills a channel twelve hundred feet wide and fifteen feet deep. Nearer the railway, owing to the channels being silted, this water is let loose over the delta.

At one time an attempt was made to limit the spread of waters by dykes but of course the space between the dykes silted up raising the level of the river. Eventually a high flood breached the dyke, the water went out through the gap and caused heavy silting. Not far from the dyke on the previously safe side there was a village. When the breach occurred in the evening the villagers escaped to the railway embankment and in the morning the village was almost silted over.

In one hamlet invaded by a new branch of the river, temporary huts of matting were erected on the site of a ruined farm house. The inhabitants of this area were not daunted; they immediately dug up the framework of the houses, re-erected them on the new surface and resumed life hoping that the river would not come their way again for a few years. Under such adverse conditions there was only a very poor living for them.

Such heavy silting at unexpected places affected the railway also. On one occasion after a shift of the river some miles above the railway the heavy silting raised the ground level above the rail level. For a mile or two the railway disappeared. The deck of an under-bridge was covered by over a foot of silt and after the flood the former bridge deck was in a cutting over a foot deep.



Village buried in silt



Field level washed away leaving bridge foundation in the air

At another place the rush of water broke the track, which was carried away several hundred feet from its original position and buried. The railway authorities followed the example of the villagers and raised the railway. For several years the railway authorities were busy with embankments and bridges, trying to keep above flood level. In recent years, partly owing to less severe rains and partly owing to the position becoming more stabilized, there has been less trouble but it is only a matter of time for a cyclonic storm to come again.

Theoretically such a river can be trained to minimize erosion at the uplands but the cost would be very considerable and the problem hitherto has been to minimize the loss as far as it is commercially feasible. As long as the silt comes down, it must go somewhere, and the difficulty is to try to control it as far as can be done to cause the least damage from the general point of view.

These washouts are small annual events; the outside world does not hear much about them and they are not to be compared with the awful floods arising from the Yangtze overflowing or the Yellow river choking its course and breaking out, when millions of people are affected. Along with the Mississippi these rivers offer the greatest hydraulic problems of our time.

Repairing Damage

During the civil war considerable damage was done to railways, in some cases providing examples of some engineering interest.

One example is a bridge of which a girder was wilfully damaged in the bottom flange in such a way as not to be apparent to ordinary track workmen. Under the weight of a train the girder gave way gradually so that the locomotive got across the bridge but not the tender and succeeding cars. The locomotive was derailed but it ran along on the bridge timbers and came to a stop on the embankment.

Very interesting is the accident history of the Lanchow bridge which has ten spans of one hundred feet and five of two hundred feet. On one occasion a military party staged a derailment on the bridge and one of the derailed cars broke a vertical member of one of the two hundred feet spans. Fortunately the girder did not collapse and it was supported as soon as possible on sleeper stacks under each panel point so that traffic could be resumed. The cross girder next to the post was also broken. Being a pin-connected

bridge it was a ticklish job to get the damaged member taken out. However it was done and the member and the cross girder repaired both by rivetting and welding. On another occasion the top of a pier and ends of adjacent hundred-foot span girders were wrecked by an explosion. Fortunately it was possible to stack the girders up and support the track. The top half of the pier was rebuilt and new ends were made for the girders.

On yet another occasion a more lucky escape occurred. Explosives having been let off between the ends of adjacent two hundred feet spans, the end cross girders, stringers and ends of the main girders were damaged. This was a critical situation as the start of the rainy season was at hand. Not many sleepers were available and the best that could be done was to put two stacks under each girder end. The damaged parts were cut out, the spaces carefully measured and new parts made in the railway workshops at Tongshan. Both rivetting and welding were used for this repair. After the damaged parts had been cut out and before the new parts were in, an unreasonable military official insisted on running his locomotive over the bridge in spite of the end members being non-existent and the girder very inadequately supported by the two sleeper stacks at the end of each girder. The result was that one girder suffered a permanent deflection of over

an inch but the river having commenced to rise, nothing could be done about it. The repairs proceeded, the water continued to rise and two of the four sleeper stacks were washed away. All concerned did their utmost to get the newly inserted parts rivetted or welded and it was just in time, for the day after the main members were restored, the remaining sleeper stacks collapsed and disappeared down stream. This was a very narrow escape as, if the girder had fallen, the railway would have been interrupted for a considerable time.

Locomotives, Cars and Workshops

Time permits only a brief description of the rolling stock and workshops. While the loading gauge is good, viz., ten feet wide and fifteen feet high for rolling stock, the original girders on the bridges limit the axle loads. However a girder improvement program has been commenced and when it is completed improved locomotives can be obtained as required up to Cooper's E.50 loading.

The principal locomotives in use at the present time are 4-6-2 type for passenger work and 2-8-2 or 2-8-0 for freight work. The former have 20-in. by 26-in. cylinders, 66-in. driving wheels, 2,400



Washout leaving track overhanging the flood

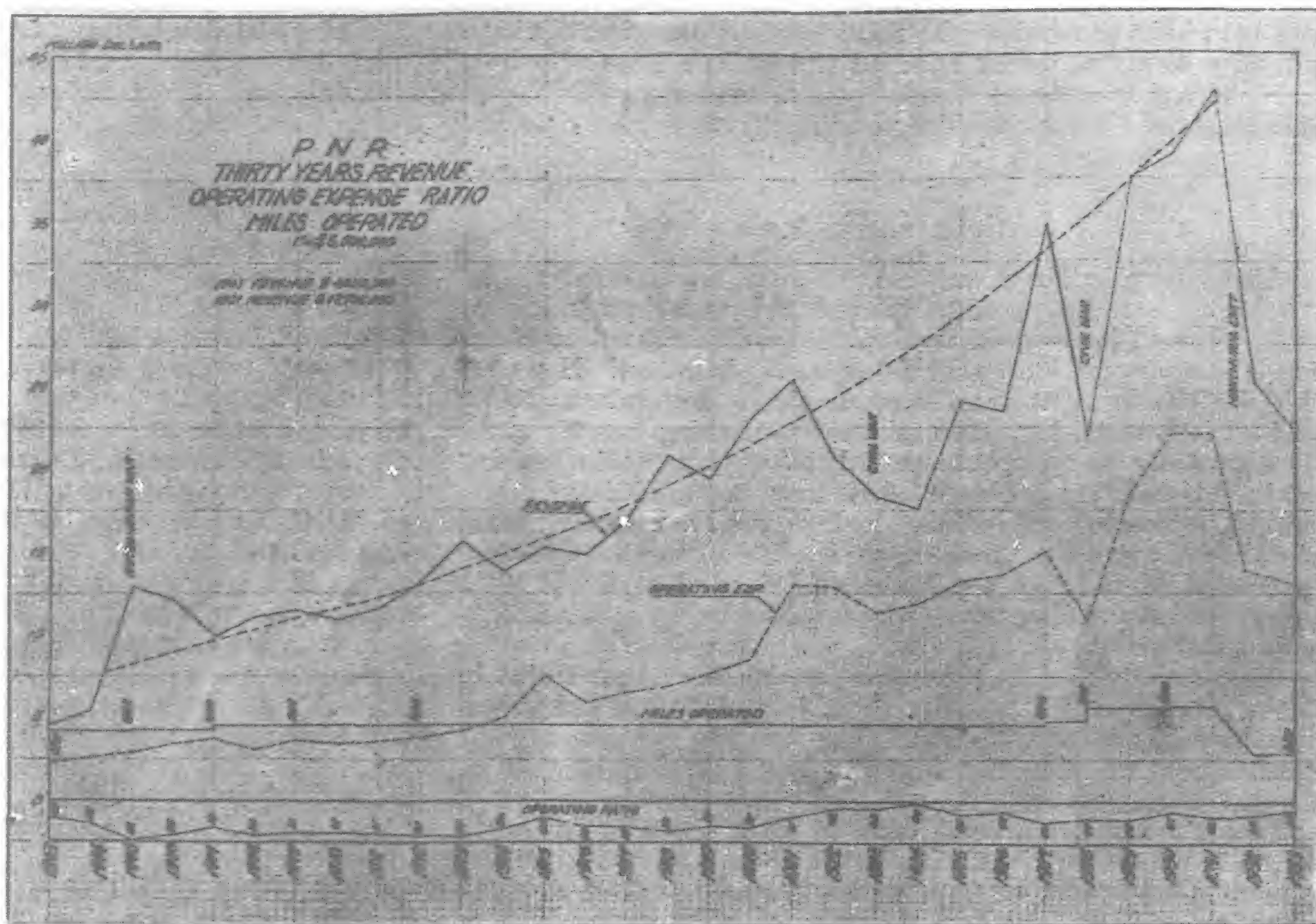
square feet of heating surface, 500 square feet of superheating surface and 41.4 square feet of tons, area. The maximum axle load is 16 tons, tractive power at 85 per cent is 25,448 pounds, boiler diameter is 68-in. and working pressure in some cases 180 pounds and in others 220 pounds.

The freight locomotives have 21-in. by 28-in. cylinders, 54-in. driving wheels, 2,285 square feet of heating surface, plus 493 square feet superheating surface, and grate area of 41.4 square feet. The maximum axle load is 16 tons, tractive power at 85 per cent is 30,000 pounds, boiler diameter is 68 in.; the working pressure of some is 180 pounds and of others, 220 pounds. Some of the engines of this class were made at the Tongshan workshops of the P.N.R. It may be mentioned here in connection with the locomotives generally that one hundred and twenty-five are fitted with superheaters and six with mechanical stokers.

For the Hankow-Canton railway some rather interesting locomotives were supplied by the Vulcan foundry. With 5-ft. 9-in. driving wheels, these engines are of the good capacity of thirty-three thousand pounds tractive effort while at the same time they are easy on track and bridges, the maximum axle load being sixteen and three-quarter tons. To attain this result they are somewhat spread out in length, with a wheel base of eighty-four feet, requiring large turntables. The loading gauge permits a height of 15-ft. 3-in. to top of chimney and a width of ten feet, so the boiler is ample, providing in all 4,064 square feet of heating surface. Ten engines have been fitted with boosters driving the rear axles of the leading tender bogie. The total weight of just under one hundred and ninety-three tons is not quite the heaviest built in this country but the overall dimensions are believed to be the record for British make. All the latest ideas have been incorporated in these engines. As improvements are added gradually we get accustomed to them and although the Chinese drivers have not got our background, I must say they are doing remarkably well.

Turning now to some interesting relics of the past, if a locomotive is defined as an engine running on rails and driven by its own power then the "Pioneer" was the first locomotive in China. This small engine ran for a short time on the 2-ft. 6-in. gauge light railway from Shanghai to Woosung. It weighed 1½ tons and could be lifted off the track by a few coolies. Though the railway was popular at first, after a fatal accident the opposition to it became so serious that in 1876 it was purchased from the promoters, torn up and the materials shipped to Formosa where they were dumped on the beach in 1877. The "Pioneer" was built in England by Ransom and Rapier.

Soon after the above event another short railway was being made from Tongshan to Hsukochuang, to connect there with the Lutai canal. It is an old story how the railway was sanctioned for animal haulage only but the locomotive "Rocket of China" was secretly constructed by Mr. Kinder at Tongshan. This engine was for a gauge of 4-ft. 8½-in. and was, therefore, not only the first locomotive to be made in China but the first to run on the standard gauge in China. The boiler was obtained from a portable winding engine and other parts from various sources. It is stated that, including labor but not old materials, the cost was £52. This engine was put to work in 1881 at the same time as track laying commenced and later on, when better engines became available, was used for many years for workshop shunting. The "Rocket" had cylinders with 8-in. by 14-in. stroke, 30-in. wheels, a wheel base of 8-ft. 3-in. and overall length of 18-ft. 9-in. Some years ago it was removed to the Communication Museum in Peking.



The majority of the carriages of the P.N.R. are of two lengths, viz., 57-ft. and 67-ft. over couplers. The width allowed is 10-ft. and the height 14-ft. 2-in. to the roof line. There are day cars, sleeping and dining cars for first and second class and day cars and restaurant cars for third class. By the kindness of Messrs. Sandberg, who have been connected with the Chinese railways for about fifty years, I am able to give you an idea of the new carriages recently supplied by the Birmingham Railway Carriage and Wagon Company. The length over couplers of all cars is 73-ft. 10-in.; a second class carriage weighs fifty tons, seating forty-two passengers, and having two men's and one women's lavatories. These cars have central couplers and end steps so that they can be used at high or low platforms. The first class sleepers have eight compartments for two passengers, each having its own washbasin, with two lavatories and car attendant's room. The third class sleeping cars are as simple as possible in order to provide the cheapest possible accommodation. The height of the cars enables three bunks to be fitted, so that seventy-two passengers can sleep in one carriage. These vehicles have been supplied for the Hankow-Canton railway. A great deal of the freight traffic is conveyed in 40-ton cars. There are also thirty-and twenty-ton cars but only a few of less capacity than twenty tons and they are going out of use.

One of the finest private trains ever made up anywhere was prepared by the P.N.R. in 1932 for the Lytton Commission. There was a large day saloon as an assembly room and each of the five commissioners had an elegantly fitted private saloon with drawing room and sleeping compartment. For the secretarial staff there were sleeping cars. Two dining cars accompanied the train and an ordinary carriage was converted into a special car which provided hot baths, laundry, barber shop and dispensary. In this train the Commission travelled all over the Chinese railways north of the Yangtze.

The Shanhaikwan Workshops do all the work for the Engineering Department and sundry other work. They have made many layouts of points and crossings, water tanks, pumps and pipes, turntables and bridge girders up to 100-ft. span; plate girders and 200-ft. span truss girders have been fabricated from imported plates and angles. In addition, signal frames, signals and signal gear generally, wheel-barrows and weighing machines and many sundries have been made at Shanhaikwan workshops. When busy this workshop employs eight hundred men. The main workshops of the railway are at Tongshan where all the locomotive, carriage and freight work is looked after. Everything except axles and tyres and the usual special fittings always bought from the makers can be made at Tongshan and in past years ninety-two locomotives

have been built or rebuilt. Over five hundred passenger carriages and three thousand seven hundred freight cars have also been made and a great amount of repair work done for the P.N.R. and other railways. When busy Tongshan Works employ two thousand four hundred men.

Stations and Signals

The station buildings on the P.N.R. are, on the whole, plain. At the time the railway was constructed funds were short and it was considered that in a country where the economic standard is not high it was unsuitable to provide expensive buildings. However, with the development of railway traffic, a demand for better facilities is now arising. The terminus at Peking was for many years certainly the best of the P.N.R. stations. The booking hall in this building is about 130-ft. long, 65-ft. wide and 50-ft. high, with suitable public offices opening off the hall on the ground floor and railway offices on the upper floor.

The Head Office of the Railway is situated at the Tientsin Central station and is another of the few reasonably good buildings on the line.*

The signalling on the railway is suitable for the conditions in China. On the single track the electric staff is in use and on the double track, lock and block signalling. Up to the present time here has been no advantage in attempting to replace mechanical operation of the switches by power operation as the relative costs of labor and material are quite different from those prevailing in other parts of the world. At important stations for trains arriving and departing, semaphore arm signals are used and for shunting work signals of a disc pattern which show lights both by day and night. For incoming trains indicators are used in connection with the signals to inform drivers into which platform they will enter. Track circuiting is used throughout, which, as well as effecting locking, also operates an illuminated diagram in the cabin. Along the front of the levers are rows of lights showing by red and green the actual position of points and signals. There are some motor-operated signal arms and distant switches but generally speaking mechanical operation is quite satisfactory and economical under the existing conditions. The P.N.R. has settled the Distant signal question by providing a fish-tail sign illuminated at night to distinguish the light of the Distant signal from other red lights. It is customary for many people to carry lanterns giving a white or yellow light. Dust storms are prevalent and in the absence of a supply of electricity along the line to make a yellow light a distinctive light the P.N.R. fish-tail sign has worked quite satisfactorily.

Those who have read the Wedgwood report on Indian railways have noticed that it recommends for single line passing stations, a central cabin with wire-worked points as being substantially cheaper than the two-cabin system prevalent in India. Our experience was different. We fitted up two stations with central cabins and found that the capital expenditure was more, largely due to the cost of the long lengths of double wire. Only the operating cost of signalmen's wages was slightly in favor of the central cabin, as two cabins required two signalmen and no staff carriers, whereas one cabin required a signalman and a staff carrier. Under our rules the staff should be put through the instrument and we did not allow the signalman to be absent from the cabin while he carried the staff a thousand feet or more to the waiting train. But apart from cabin wages there are some definite advantages in the two-cabin plan, for the waiting train can start immediately the arriving train has cleared the fouling point. To take the staff to a central cabin and then to the waiting locomotive takes too much time, especially on a dark and rainy night and with stations about every six miles this was quite important. Further advantages of having two cabins are that with the cabin at the loop points and next to the main line, shunting was easier to manage and the signalman never had to cross the track or dodge under cars. Then with a central cabin the staff is given out before the signalman sees the tail lights, while with two cabins there is a good chance of stopping the train if anything is wrong. Accordingly when the Peiping-Tientsin section, eighty-six miles long, was recently improved the two-cabin system was preferred. The distant signal is given for non-stopping trains only and is interlocked with the starting signal which is interlocked with the train staff. The station running lines are track circuited and so the speed through stations was safely increased and the time-table considerably improved.

Industrial development is much needed in China where the population has increased beyond the power of agriculture only to support. A notable example of providing much-needed employment and assisting to provide the power for new industries is the Kailan Mining Administration which is a joint Sino-British concern operating mines near Tongshan and Kuyeh. What China needs is a great number of "Kailans." The output of the Kailan is over four million tons per annum, most of which is sent over the Peiping-Liaoning Railway to Chinwangtao for shipment to other places in China and the Far East, and the rest to Tientsin and other places by rail. This coal is conveyed in the forty-ton cars previously referred to, in trains of about forty cars. The port of Chinwangtao is owned by, and was constructed by the Mining Company and provides accommodation for seven to eight steamers, with a depth of water at the end of the breakwater of thirty feet. The coal is conveyed from the cars to the ships by hand labor but so good are the Chinese workmen at this kind of work that as much as eight thousand tons has been loaded into one steamer in twenty-four hours. The fact that hand labor can still hold its own against machinery is rather a startling illustration of what can be done in countries where the general economic level is quite different from that in Europe or America. The workmen who do this work are not badly off but some day when the economic level has risen machinery will come in.

A subsidiary industry at Chinwangtao is the glass works at which all kinds of glass are made. The Head Office of this enterprising concern is at Tientsin and is a very fine building.

Operating Record

Commencing at Tongshan, the railway was gradually extended to Tientsin and Peking, and to Shanhaikwan and a few miles beyond the Wall. At that time it was a Government concern financed by Government grants from the Viceroy Li Hung Chang but progress was very slow, so that the loan agreement of 1898 was made in order to get the railway completed to Newchwang and Hsinmin. The loan was for £2,300,000 at five per cent repayable in forty instalments commencing in the sixth year. The repayments have been made and in about six years the borrowed capital will be paid off and the P.N.R. will be in the unusual position for a railway of having no capital account on which interest has to be paid to bondholders or shareholders. There is a nominal capital account but as the bonds are paid off the Government share is increased by the same amount and the profits will be entirely available for railway extensions or improvements. Already the P.N.R. has contributed large sums to other government railway work.

The repayment of the capital is not the only remarkable result. In 1903 the revenue was \$4,658,000 and expenditure \$2,316,000. In 1905 the railway made a great profit from conveying stores to Hsinmin and Newchwang during the Russo-Japanese war; that seemed to give things a good start for the revenue steadily increased and doubled every ten years up to the maximum of \$42,758,000 in 1931. The severe drops in 1922 and 1928 were caused by civil wars which completely upset the railway and in 1931 a historical change occurred which altogether changed the position. The average operating ratio for thirty years was forty-four per cent but for the ten-year period 1905 to 1915 the average was thirty per cent. Now the ratio is about sixty per cent. When the benefit to industry and employment in the area served by the railway is taken into consideration the loan certainly led to an extremely successful result.

* The greater part of the offices has been destroyed in the war.

New Railway Project

Officials of the Japanese Railway Ministry have formally decided to lay a new electric railway line between Tokyo and Shimonoseki, reports the *Chugai Shogyo*.

A geological survey is now being carried out by the Ministry's experts, after having completed a survey from the air.

This project to link the two cities is estimated to cost about ¥1,000,000,000. It is expected that trains will be able to cover the 450-mile stretch in about seven hours.

Present plans call for the adoption of the standard railway gauge, and the boring of a tunnel through Mount Suzuki near Osaka.

Mining Outlook for the Philippines

By Prof. V. V. CLARK, E.M.*

(The following highly informative paper on the subject of the mining industry in the Philippines was given on May 11, 1939, before the Baguio Rotary Club and published in the "American Chamber of Commerce Journal" for August. The author is Head of the Department of Mining Engineering University of Philippines, Manila)

MINING in the Philippines has had such a phenomenal growth, especially during the last three years, and the dividends that have been distributed among the shareholders have created such a fine faith for the future, that any one forecasting a possible future for this industry should watch his step carefully and weigh his words. I am a participant in that faith, yet I feel that we should step on the brakes somewhat, as we are approaching some steep hills which may cause us to skid if not go over a precipice in our onrush to greater prosperity. My career as a mining engineer over a long term of years as an examiner and appraiser of mines has taught me the wisdom of exercising caution when analyzing the merits of a mine, a group of mines, or a mining district. I am neither a pessimist nor an optimist. But I do believe in playing safe, and the tenor of this address will be on the basis of "Safety First."

I am now presenting seven important questions, and ask you to assist me in answering them. They are:

- (1) What will be the ultimate depth of the Philippine ore deposits?
- (2) Who will constitute the management and personnel of the large mines after Independence shall have been attained?
- (3) What will be the attitude of the Government on mine taxation?
- (4) What will be the attitude of organized labor on mine operation?
- (5) Will the present price of \$35.00 for the gold ounce continue?
- (6) Will the demand for Philippine iron, chromium, manganese and copper be greater?
- (7) How soon will the much needed geological survey of the mineral producing Islands begin?

Terms and Definitions.—Before we begin answering these questions let us understand each other on a few fundamental definitions. The layman and the engineer frequently misunderstand each other by reason of simple differences. Therefore, to clarify these differences I offer three definitions: (1) "Mining is the process of obtaining useful minerals from the earth's crust, and includes both underground excavations and surface workings" (Lewis) (2) Speculation in mining may be expressed thus "The intrinsic value of an ore deposit may be high but if there are any limiting factors that preclude normal production, development or sale, the value of the mine lies within a more or less wide margin of risk." (Hoover) (3) "A prospect is the name given to underground workings whose value has not been made manifest" (Coal and Metal Miner's Pocket-book).

It will be apparent from these definitions that there are three kinds of mining, not only in the Philippines, but in any other part of the world, viz.: Mining for legitimate profit from ore actually produced; speculation in mines and on mining stocks; and the promotion of prospects.

As to the first type: In the absence of authenticated statements as to the ore reserves of a mine, and the possible continuity of the ore deposits at all working faces, it is a mistake to judge the present worth of any mine by its production record. The second type: It is a serious mistake to judge a mine by its share and price movement on a stock exchange, or from mere rumors. The third type: It is a fatal mistake to call a prospect a mine.

The speculation in mines and mining shares will undoubtedly continue in the Philippines. It seems to be an inherent trait of human nature to gamble on an uncertainty. If an investor would buy outright a good dividend-paying stock and hold it for an investment, then he, as a participant of benefits, would be on a sound mining basis. The rise and fall of stock markets from day to day would not interest him nor effect the value of a perfectly sound mine security. But the mine-stock investor must remember that a mine is a wasting asset, the longer the mine operates the less the ore reserves are in both tons and pesos, and that he must use the same keen business sense by keeping in touch with the engineering statements as to monthly ore reserves, value per ton, recoveries, costs and profits, as he would use in any other business of importance, and buy or sell his safe-deposit security as the situation dictates.

Prospecting for new mines must continue so that the depletion of developed mines may be supplied by newly developed mines. Misrepresentation and salting of prospects, which were rampant in the Philippines two years ago, must be wiped out by stringent laws—laws with teeth in them in the form of severe penalties for infractions. If this is not done investors positively will not help to develop favorable prospects into mines. The net result will be a premature death of the Philippine mining industry. It could be kept alive, however, by publishing intelligent and verified development reports so that the stockholders could analyze the statements and thereby actually know what has been done with their money, and what they expect in return. Another requisite in this connection is an adequate geological survey, in accord with question number seven herein, which will be taken up in its order.

Now, having completed a hasty survey of definitions, I shall proceed to analyze the seven questions:

- (1) *The Exhaustion of Philippine Ore Deposits Downwardly* has not yet been determined in the largest operating mines of the

Islands according to reports made to me personally by the Managers of the said large mines. Geologically considered no one is in a position to state or even guess with a fair degree of accuracy where, or at what horizons, these ore bodies may bottom. Only time and deeper developments will tell the story. It is certainly a most encouraging situation at present.

- (2) *Management and Personnel after Independence* is an unanswerable question. At the present time



General view, Masbate Consolidated Mining Company, Soriano Group. The mill has been enlarged to a daily capacity of 3,000 tons

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practically all of the large producing mines of the Philippines are managed by foreign mining engineers. These men have brought their properties into high peaks of production by skilfully handling mining and metallurgical problems. Years of training and experience in other fields have enabled these engineers to attain such results. It is no reflection on the newly-made Filipino mining engineers, nor on our University of the Philippines' graduates in mining engineering this year, to state that while these young men are rich in theory of the art of mining engineering, yet they still lack a knowledge of the practical end of the mining business. They must spend several years underground, in the mills and in the offices of real mines before they are qualified to take over the reins of superintendence and management. Theory and practice in mining must be welded efficiently so as to spell ton-dollar profit results.

(3) *Attitude of the Government on Taxation* is of vital importance. The base metal mines are under the present law, taxed $1\frac{1}{2}$ per cent straight on gross production while gold lode mines are taxed on a sliding scale from $1\frac{1}{2}$ per cent on gross production up to P.500,000 and on progressively up to $5\frac{1}{2}$ per cent on gross production of P.6,500,000 and over. Deductions are: 15 per cent from the tax on gold lode mines averaging seven to ten pesos per ton, and 25 per cent on gold lode mines averaging less than seven pesos per ton. Placer mines are subject to a deduction of 35 per cent on any grade. There appears to be a distinct discrimination between the two classes of gold minings, or the aim might be to stimulate prospecting for placer gold deposits.

But the new tax on gold lode mines is a different picture. Take Benguet for example: The present tax amounts to P.2.26 per ton; the proposed new tax will be P.3.02 or an increase of 33.7 per cent. Balatoc, old P.2.45 per ton, proposed P.3.23, an increase of 31.9 per cent. One only has to study the annual reports of these large gold mining companies to see at a glance where the bulk of their costs lie. It is most illuminating. And the other large mines are operating under the same difficulties, all of which are faced with this higher taxation.

The four fundamental sources of wealth in the order of their money-making importance are: (1) the farms; (2) the fisheries; (3) the forests; and (4) the mines. While the mining industry comes last in this scale of wealth production, yet from a standpoint of industrial importance, and particularly the importance of a nation's resources for war purposes, the mines should be listed as second after the farms which produce the nation's food supply. It would therefore seem that since the mines produce the metals necessary for national welfare, also gold for credits and base metals for munitions for national defense, the mines should be given careful consideration and not taxed too high.

It appears to me in my humble way of looking at these matters that an industry so necessary for self preservation should be cultivated instead of harassed. All parties interested should bear in mind that high taxation on an industry so necessary for self preservation should be avoided. It should be cultivated and fostered by subsidy if necessary, similar to the iron, coal and oil deposits of the National Development Company, a Government project. In this manner the Nation can maintain the tenor of production and safeguard the morale of the producers. In this connection the high Statesmanship of President Quezon has resulted in an efficient organization for the development of iron and coal and the search for oil as above outlined.

(4) *The Attitude of Organized Labor Toward the Mining Industry* may be forecast by the recent decision of the Court and a rebuke administered to the Antamok Goldfields Mining Company for discharging reinstated striking-laborers "without just cause or without authority" from the industrial tribunal. There appears to be general unrest among laborers in Luzon at the present time. No one can see the end, and we can only hope that blinded labor leaders will not upset the apple cart completely, and thereby "kill the goose that lays the golden egg."



Lepanto Consolidated Mining Company, Nielson. The Islands' largest copper producer, now being enlarged

(5) *The Price of the Gold Ounce* and its possible fluctuation is of vital importance to the mining industry in the Philippines, as well as to all of the gold mines of the world. If I were a gold mine operator to-day I would make a careful survey of my positive ore reserve, and if possible segregate them into two classes: (1) Those which are the most accessible, the cheapest to mine and mill and of which the recoveries are the highest; and (2) those which are the most difficult and expensive to mine and mill and where the recoveries are the lowest. I should then commence immediately to mine and mill the second class as intensively as possible so as to take advantage of the present price of \$35 per ounce for gold. That would leave the first class for mining and milling if the price of the gold ounce should go down. If it should go higher, so much the better. It would simply be a Safety First measure, and I believe that it would also be good business.

We are living in a period of such sudden changes that we do not know what may happen next to our monetary standard. Undoubtedly you gentlemen are as well informed on the subject as I, and perhaps better, and some of you may feel that there is no cause for alarm. I am not an alarmist, nor do I wish to inject the element of fear into this address. On the contrary I only suggest to you the advisability of being cautious, to watch the gold situation day by day from the public prints and act as your best judgment may dictate.

One large gold producer in the Islands, Benguet, Balatoc and affiliations, is still holding to the old price of \$20.67 per ounce in their basic operating estimates, mainly for comparative purposes. The increment of approximately 70 per cent due to price difference appears when bullion declarations are made on mint shipments.

The February issue of the *Engineering and Mining Journal* of New York reviews the production of all metals of the world for the year of 1938. Respecting gold it says in part:

"Prospects for a reduction in the price paid for gold by monetary authorities are more difficult to appraise. At \$35 an ounce the value of gold output in 1938 was nearly \$1,300,000,000 or more than three times as large as the late 'twenties.' Although a gold output double in volume and triple in value that of a decade ago is no longer a fantastic dream, it has become something of a

nightmare to monetary authorities, particularly in the United States. This country has acquired more than \$7,000,000,000 of gold since January 1934, and there can be little doubt that the high level of gold output was an important factor in the magnitude of the gold flow to the United States, and in the problems of monetary management that it has created. It is not surprising therefore, that when the United States—driven into action by the boom that began the latter part of 1936—tried various devices to curb the influence of the gold flow on the credit situation, the world should jump to the conclusion that a reduction in price would strike at the root of the problem, was a possibility."

In my opinion it would create a financial panic all over the world should the price for the gold ounce return to \$20.67. On the other hand the United States Government had for the first time last month exceeded \$16,027,000,000 in gold at \$35 per ounce. This is nearly 64 per cent of the monetary gold held by the governments of the world.

In 1937 the Government moved \$12,962,854,000 of this gold from the Philadelphia and New York mints to a gold storage vault at Fort Knox, Kentucky. This vault is supposed to be both burglar and bomb proof. The gold in storage at that time (1937) would make a bar about 50 feet long, 25 feet wide and 17 feet high. Up to March, 1939, it has grown 18 per cent larger. The vital question is, can this unwarranted and unwanted accumulation of gold be stopped?

It appears that Uncle Sam has, in his effort to get something for nothing, by devaluing the gold dollar to 59.06 per cent, and increasing the value of the gold ounce approximately 70 per cent, created a boomerang which has now returned and is hitting in the solar plexus. The very fabric of his commercial structure has been threatened by this super-abundance of gold supply.

We as mining men should remember that the foreign nations do not want the gold. They want U.S. treasury notes in exchange, which are being shipped back to Europe, or are stowed away in safe deposit vaults in the banks of the United States. They have our dollars and we have their gold in a gold brick which is ever increasing in size. In one week a \$7,000,000 increase in this country's circulation of currency was reported to be in large denomination notes either to be held in safe deposit boxes or shipped abroad.

We have increased our search for statistics and have found this table brought up to the end of March, 1939, by the U.S. Federal Reserve Board which shows the distribution of the World's gold hoard at that time:

Country	Millions of Dollars
United States	15,258
United Kingdom	1,062
France	2,435
Germany	29
Holland	909
Switzerland	640
Spain	525
Russia	—
Italy	193
Belgium	518
Canada	210
Argentina	431
Japan	164
India	274
World Total	25,130

Of which the United States held at the end of March, 1939, 60.7 per cent. It will be observed, however, that Russia's hoard of gold is not recorded. In 1937 it was reported that Russia held for some \$7,000,000,000 of gold, which added to the troubles of the monetary experts. Then in April, 1937, President Roosevelt announced that, in his opinion, "certain commodity prices were



San Mauricio Mining Company, the spectacular Marsman producer, with the highest grade ore in the Islands

too high." Such a statement coming from the Administration that had raised the price of gold to bring about recovery in prices, was thought to imply that a contrary policy might be followed to combat inflation and reduce the volume of gold purchases. The gold scare began almost immediately.

A striking feature of the foregoing statistics is that Germany's holdings are only \$29,000,000; Italy's, \$193,000,000; and Japan's, \$164,000,000. Financially these three powers were the lowest in cash at the end of March, 1939. It undoubtedly accounts for their aggressive tactics in the meantime.

Let us, then, formulate a questionnaire of our own from a gold-miner's point of view, and for our own consideration and analysis. Here are six questions:

(1) If there is a war in Europe, and should the countries involved ship their remaining gold stocks to the United States for credits and safekeeping without earmarking the bullion, would we not have a "White Elephant" at Kentucky?

(2) Assuming that such a war should result in 90 per cent or more of all the gold in Kentucky; and Great Britain, France, Germany, Italy, Holland, Belgium, and Switzerland had practically none, and were pledged up for years of their in-coming stocks, could we use our gold hoard for International credits?

(3) Assuming further that the principal powers of Europe, above mentioned, should be forced to go on a fiat-currency basis, and we had 90 per cent, or more of the World's gold stocks, how could international trade be conducted satisfactorily in the absence of any gold flow from Europe to the United States, other than by the cumbersome method of barter?

(4) In the event we could not trade internationally with a fiat-currency medium in Europe for our commodities, would we find a gold-backed currency necessary for our domestic trade?

(5) And if we found a gold-guaranteed currency unnecessary for domestic trade within the boundaries of the United States and possessions, then would we find the tremendous gold brick at Fort Knox, Kentucky, an asset or a liability?

(6) If President Roosevelt's financial powers were extended to further devalue the gold dollar, and not return to the pre-1933 standard, would it effect mining conditions in the Philippines, considering the present status of organized labor, and a possibility of mine commodities and other supplies increasing proportionately in price and assuming the demand for them to be normal as at present?

I shall not attempt to answer these questions because I am neither a financier nor a wizard. But each question is alive with possibilities. And I believe that such possibilities should prompt us to play Safety First at all times.

The April issue of *Mining and Metallurgy*, published by the American Institute of Mining Engineers, has an excellent Editorial on pages 186 and 187, entitled "Kentucky Gold." I recommend it for your perusal. The last paragraph reads in part: "But

as already intimated, one wonders whether anyone really understands the fundamentals of this strange situation, of which the outward manifestation is the expenditure of millions of hours of labor to dig gold out of the ground in a thousand places all over the world and bury most of it in a single place, in Kentucky."

(6) *Future Demand for Base Metals of the Philippines* is an important consideration. The successful exploitation of the iron, chromium, manganese and copper mines of these Islands depends upon a continual demand for these metals at a price which will enable the metals to be mined and placed on board ship and leave an adequate profit for the mine owner. At present Japan is the only potential customer for Philippine iron ores. Home smelting of these ores has been proposed, but a local coal which will produce a hard coke for blast furnace smelting must first be found and then proven suitable. Or, some other process of producing pig iron may be discovered. Furthermore, Philippine iron and steel consumption will support only a small scale iron and steel industry at this time. Oriental markets may be developed if costs can be lowered to meet foreign competition.

The low grade chromite ores of Zambales, of say 32-35 per cent Cr_2O_3 , can be shipped to the United States for increasing the grade to any reasonable percentage by means of a smelting process. The result is a ferro-chrome product of low or high silica content as may be desired. Zambales chromite cannot be beneficiated by means of water concentration for the reason that the oxides of iron, aluminum and silicon are intimately mixed even when ground to fine powder.

The chromite ores from the southern Islands can be beneficiated by simple concentration methods. The low grade manganese ore deposits can also be beneficiated on the ground by concentration. Copper shipments have not yet, so we are informed, reached a production volume to justify home smelting. Lead and zinc concentrates are being shipped abroad as both are by-products from gold-silver metallurgy.

If war in Europe comes the prices of all these metals should be stimulated, and better profits may be realized than are possible at the present time. But if a European war should come, then the importance of keeping shipping lanes open for exporting locally-produced metals will be of prime importance, as well as for importing mining necessities, such as metallurgical chemicals, mining machinery and spares, together with such miscellaneous supplies as may be required to keep the mines running at peak productions.



Coco Grove, from the air, a Marsman operated placer property

(7) *A Geological Survey for the Philippines* is much needed and should be started on a large comprehensive basis at the earliest possibility. The thought expressed at the beginning of this paper as to the necessity of prospective mines keeping pace with the depletion of the producing mines, would be made possible and easier if a geological survey were now completed and the results available. Mining engineers could use such a survey at this time to guide them to new districts where the structures are favorable for prospecting. Topography as well as geology must be mapped. Topography should begin where the Coast and Geodetic Survey over the Islands left off. The geologists, all picked and proven men, could follow both surveys with their work. Such a survey if properly executed could be of immense value to economic mining in the Philippines.

Production Data and a Caution: The mining industry in these Islands is still young. During the three years that I have been in the Philippines production figures have shot up from P.31,627,000 at the close of 1935 to P.65,000,000 at the close of 1938. Total dividends paid amount to P.23,653,240.

Such skyrocket operations have made easy beds for the unscrupulous stock market operators. We will soft pedal the stock market slump at the close of 1937, as it is still a headache to many speculators in the mining game. They are not entitled to the name of mine investors for they were anything but that. And let us

hope that they have learned their lessons. Curbs on stock market activities have reduced speculative risks, yet short selling is still allowed. This system of selling is, however, advocated by some brokers and opposed by others.

In Conclusion, it is a distinct pleasure to say that the ore deposits of the large mines of the Philippines have not yet bottomed.

Management and personnel must continue to be high class to obtain high results.

Price of the gold ounce must always be before you, and don't forget Kentucky.

The labor situation is loaded with dynamite and might explode any day.

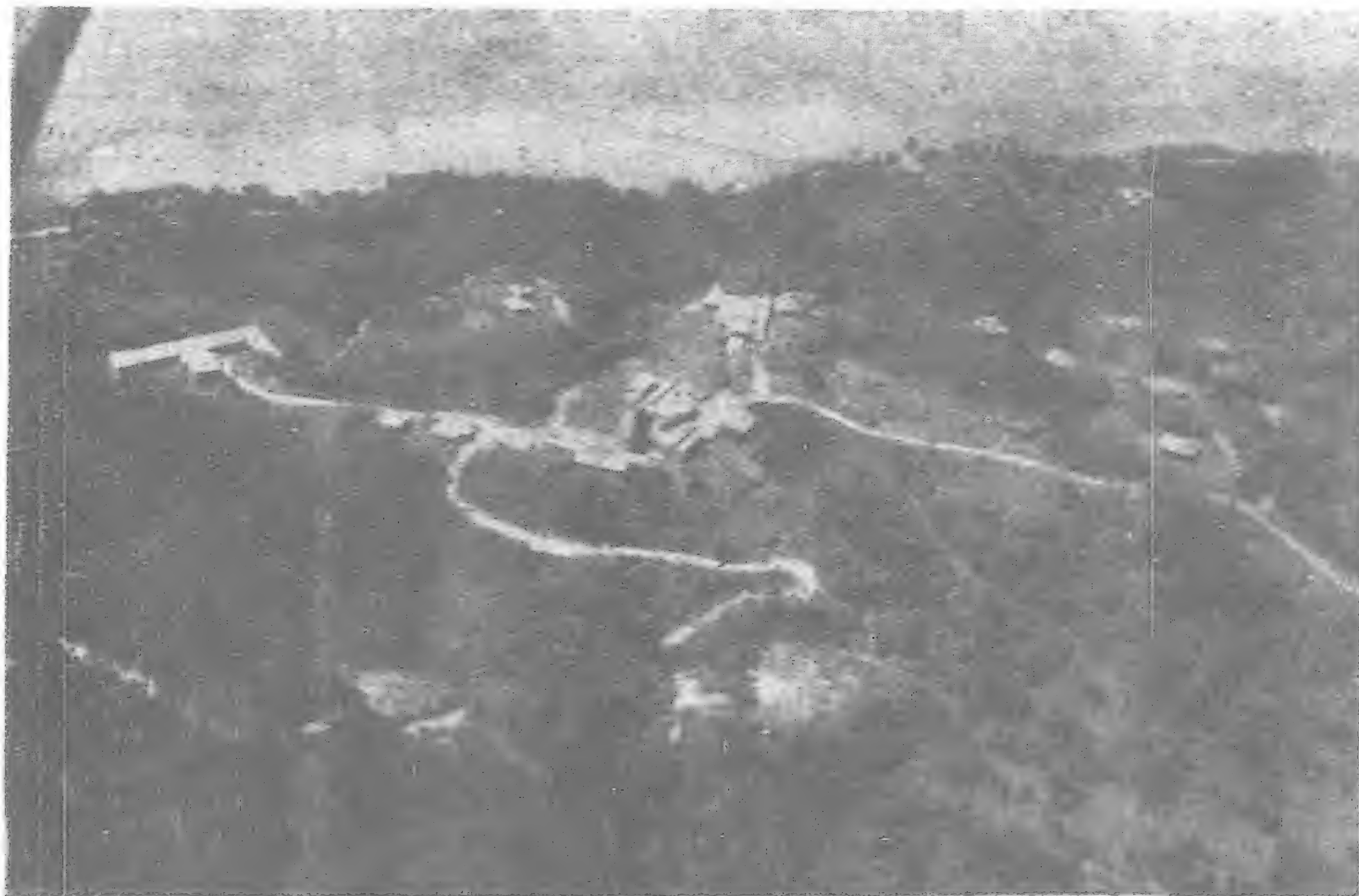
The Government will, we hope, co-operate with this infant industry and not smother it under the blanket of high taxation.

The precious and base metal mines are important and are contingent on markets and demand.

An adequate geological survey is most important, and the sooner it is started on a large scale, the better.

Finally, the watchword throughout the Philippines should be *Co-operation*. This must be obtained to maintain peace and plenty, and foster this young and promising mining industry.

(Continued on page 434)



Benguet Consolidated Mining Company, oldest producer. The new shaft head-frame is not shown

The Institution of Gas Engineers

Murdoch Centenary Meeting

By *WALTER T. DUNN, M.I.MECH.E.*

THE Seventy-sixth Annual Meeting of the Institution of Gas Engineers was regarded as the Murdoch Centenary Meeting, held in honor of the memory of William Murdoch, who died one hundred years ago, on November 15, 1839, aged 85 years. He was interred in Handsworth churchyard near the remains of Boulton and Watt. A great-grand niece of his was present at the meeting in the person of Mrs. Jean Crichton Cullen, wife of Dr. Cullen the President this year of the Institution of Chemical Engineers.

Murdoch has been described by R. Angus Downie as the greatest mechanical inventive genius that Scotland has produced. His invention or demonstration of the commercial possibilities of gas for lighting was to him perhaps only an incident in a varied and honorable career, and he derived no advantage from the extended use of gas.

The special character of the meeting may have accounted for the record attendance which was only 62 short of 2,000. Murdoch may be considered as the founder of the British Gas Industry, and therefore worthy of honoring by an Institution established in 1863 for the purpose of fostering this great national industry. It may be remarked that at the end of last year the total membership reached the figure of 1,700. Its progress has been very marked since its Royal Charter was granted in the year 1928.

Mr. Robert Robertson M.INST.C.E., President for 1938-39, took the chair at the beginning of the proceedings in the Great Hall of the Institution of Civil Engineers, Great George Street, Westminster, kindly lent by the Council of that body. The weather during each of the four days of the meeting was most propitious, and the gathering was most representative. There were a number of distinguished visitors from overseas. Everyone was delighted to welcome their fellow gas engineers from other parts of the world, including the Far East—a welcome all the more significant when the international difficulties are borne in mind.

The President's first duty was to voice, on behalf of the Council, a cordial welcome to all the members present, and particularly those on a visit to the homeland. His welcome also to continental and other visitors was none the less sincere. These included the President of the International Gas Union (Herr Hermann Muller, of Dessau); and two Past-Presidents of that Union viz. Monsieur A. Baril of Paris, and Herr Fritz Escher, of Zurich. There were also present representing the Belgian Association of Gas Engineers Monsieur J. de Brouwer and Monsieur Perior. Messieurs C. Desanges and J. Ellissen attended on behalf of the French Gas Union. Dr. H. C. Gerdes and Herr W. Nowakowski were representing the German Association of Gas and Water Engineers. The Netherlands Gas Association was represented by Prof. Brender Brandis. Mr. J. C. Irminger came as the representative of the Norwegian Gasworks Association; while the Polish Association of Gas and Water Engineers, and the Economic Union of Gas and Water Engineers of Poland were represented by Dr. B. Roga. Present for the Swedish Gas Works Association was Mr. C. W. Pilo; and the Swiss Gas and Water Association was represented by Colonel H. Zollikofer, who is also General Secretary of the International Gas Union.

Mr. W. J. Baker from Shanghai; Dr. M. Bohm from Milan; and Messrs. Bernard F. Browne, of Santos; A. J. C. Bult, of Victoria; A. E. Chadwick, of Melbourne; B. Darker, of Brisbane; C. G. Driessen, of Maastricht; J. P. C. Handy, of Sao Paulo; K. F. Keeble, of Buenos Aires; J. M. Macfarlane, of Melbourne; J. N. Reeson, of Melbourne; and H. E. Stone, of Hongkong, were also present.

After the President's address of welcome came the presentation, without discussion of a symposium on "The Gas Industry Overseas." This communication gave a succinct account of the origin and development of the Gas Industry in other countries, and consisted of a series of short articles by eminent representatives of the Industry overseas. It dealt with the past, present

and future of the industry in their respective countries. Their record of how common difficulties were faced and overcome will prove of great value as a source of reference for years to come.

Messages of Greeting

Then followed the announcement by the Secretary, Dr. W. T. K. Braunholtz, of the receipt of messages of greetings from various continental and overseas Gas Associations, including the American Gas Association, the Canadian Gas Association, the French Gas Association, the German Gas and Water Association and the Yugo-Slavian Gas Association. Suitable replies were ordered to be sent.

The Council's 76th Annual Report and Accounts for the year 1938-1939 were taken as read. Arising from the Report Mr. C. Valon Bennett of Rochester called attention to the inadequacy of salaries offered in some cases for positions of engineers to gas undertakings. The President replied that a great deal of thought was being given by the Council to this subject in the interests of members, and the District Associations of the Institution had been communicated with; he hoped ultimately a satisfactory conclusion would be arrived at.

Mr. Walter T. Dunn, M.I.MECH.E., a former Secretary to the Institution, also speaking on the Council's Report, stated that he had received from Sir David Milne-Watson, as President of the British Gas Federation a letter in reply to one suggesting that steps be taken with a view to arranging for a stained glass window to be erected in Westminster Abbey in honor of William Murdoch, so placing a record of his place amongst other scientific worthies to whom the world owes so much. It appeared that the Federation considered the time inopportune to proceed with the matter, and Mr. Dunn concluded his remarks by observing that he believed the Abbey Authorities would be prepared to do their part, if the Gas Industry found the funds for the work. It can only be hoped that eventually the window suggested may fill one of the, at present, vacant lights in the national shrine of Britain.

It was then reported that Mr. George Dixon, B.ENG., M.INST.C.E., Chief Engineer to the Corporation of Nottingham Gas Department had been elected President for 1939-1940; and that Sir Frederick J. West, C.B.E. had been elected Vice-President. The Chief Engineer to the Gas Light and Coke Company Mr. R. W. Hunter, M.INST.C.E., becomes the other Vice-President.

The presentation of Medals for Papers read in 1938 was proceeded with. The Institution Gold Medal was awarded to Mr. F. B. Richards, M.B.E. for his Paper on "Carbonization from a Plant-Designer's Viewpoint." Mr. Richards is Managing Director to the Woodall Duckham Companies, Ltd., who have installed plant at Tokyo and other cities in the Far East. The "H. E. Jones" Medal went to Mr. E. V. Evans, O.B.E. Joint Manager to the South Metropolitan Gas Company for his Paper "Considerations upon the Processing of Coal," and the Institution Silver Medal to Mr. J. E. Blundell of Carlisle for his Paper "Experiences and Impressions of Thirty Years in the Gas Industry." The Bronze Medal was awarded to Mr. W. S. Hubbard for his Paper on "Choice of Gas Storage" given to the Yorkshire Junior Gas Association.

Mr. Robertson's Presidential Address followed, in the course of which he stated that certain suggestions had recently been made for improving the existing district organization of the British Gas Industry and the use to which it is put. One was that there should be more intimate collaboration between the Committees of the District Gas Associations and the District Committees of the other National bodies; and another that a district technical service might be provided for the production and distribution of results on similar lines to that of the Industrial Gas Development Centers, an organization which is doing good work in a very efficient way. Other topics touched upon by the President were the need for more drastic editing of the publications of all technical associations;

education and training; and the awarding of diplomas in connection with the examinations of the Institution.

After a vote of thanks had been passed for the Address, the final item of the program of the first morning's session was reached. It consisted of a masterly Lecture "The Murdoch Centenary Lecture" by Dr. E. Armstrong, son of the well-known (late) Prof. H. E. Armstrong, Professor of Chemistry in the City and Guilds of London College, South Kensington. In the Lecture the co-founders of the Gas Industry—Clegg and Winsor were considered. Some interesting lantern slides were prepared to illustrate the lecture.

Murdoch early realized the potentialities of steam application, setting his mind and devoting his leisure to the invention of a model locomotive high-pressure, non-condensing steam engine. His model was presented to the Birmingham Art Gallery, where it may now be seen; it is the first to show the slide valve. He was anxious to patent his invention and to pursue it further, but Watt objected and took every opportunity to discountenance his experiments, insisting that Murdoch should "apply himself to the business in hand." So perhaps Murdoch turned his attention to another problem, the use of gas as a source of light. In the year 1792, having completed the necessary preparations, he lighted up his house and offices at Redruth, Cornwall, with gas generated in an iron retort in the back yard.

A Historic Document

It seemed proper to repeat his own words in his paper communicated by Sir Joseph Banks, the President, and read before the Royal Society on February 25, 1808, the original manuscript of which is still preserved. This surely forms the most interesting document in the history of gas lighting.

"The Royal Society may perhaps not deem it uninteresting to be apprised of the circumstances which originally gave rise in my mind to its application as an economical substitute for oils and tallow.

"It is now nearly sixteen years since, in a course of experiments I was making at Redruth, in Cornwall, upon the quantities and qualities of the new gases produced by distillation from different mineral and vegetable substances, I was induced by some observations I had previously made upon the burning of coal, to try the combustible property of the gases produced from it, as well as from peat, wood, and other inflammable substances. Being struck with the great quantities of gas which they afforded, as well as with the brilliancy of the light and the facility of its production, I instituted several experiments with a view to ascertaining the cost at which it might be obtained, compared with that of equal quantities of light yielded by oils and tallow."

"My apparatus consisted of an iron retort, with tinned copper and iron tubes through which the gas was conducted a considerable distance, and there, as well as at intermediate points, was burned through apertures of varied forms and dimensions. The experiments were made upon coal of different qualities, which I procured from distant parts of the Kingdom, for the purpose of ascertaining which would give the most economical results. The gas was also washed with water and other means were employed to purify it."

Murdoch gave his employers, Boulton and Watt, full particulars of his investigations and the results, but they repeatedly put him off, pleading that the lawsuits in which they were engaged over Watt's patents were enough for a lifetime. There can be no doubt that Murdoch was discouraged and it is suggested that in 1797 he went back to Scotland to start his own foundry. This is doubtful. At all events in 1798 he was back in Birmingham as manager of Boulton and Watt's engineering works. When the partnership of Boulton and Watt was brought to a close in 1800, a new partnership was formed by their sons who were more open to new ideas: and the firm, with the help of Murdoch and John Southern, an assistant in the drawing office, entered upon a period of unexampled prosperity. The Soho, Birmingham, factory became the nursery of the steam engine and of steam engineers, including the application of steam to navigation. This atmosphere must have been favorable to the development of new ideas and hence to Murdoch's work on gas.

The stimulus to give publicity to Murdoch's invention seems to have been derived from a visit to Paris by the brother to James Watt in 1801 when he learned that a Frenchman, Lebon, was making experiments. In March, 1802, on the occasion of the celebra-

tion of the Peace of Amiens a gas light was placed at each end of the Soho works, the gas being conducted from the retort directly into a copper vase... A year later the Soho Foundry was lighted; the gas passed from the retort to a holder, and thence through brazed copper tubes to cockspur burners. The first order executed by the firm was for the cotton mills of Phillips and Lee of Salford which were lighted in 1805 by gas.

The remaining part of the lecture was equally interesting, and at its conclusion a cordial vote of thanks was passed to Dr. Armstrong.

A photograph of the members and visitors was taken on the adjoining Horse Guards Parade and afterwards the President gave the usual official luncheon at the Savoy Hotel. There was a numerous and distinguished company present including Lieut.-Colonel Sir Arnold Wilson, K.C.I.E.; Herr Hermann Muller, Dipl. Ing.; Mr. W. J. E. Binnie, M.A., President of the Institution of Civil Engineers; Sir David Milne-Watson, Bart., Governor of the Gas Light and Coke Company; the Rt. Hon. J. R. Clynes, M.P.; Dr. A. G. Glasgow (Messrs. Humphreys and Glasgow); Sir Francis Joseph, K.B.E., President of the Society of British Gas Industries; Sir William Larke, K.B.E., Director of the British Iron and Steel Federation; Sir Henry Tizard, K.C.B., Rector, The Imperial College of Science and Technology; and Sir Duncan R. Wilson, C.V.O., Chief Inspector Factory Department, Home Office. The toasts produced some eloquent speeches. In silence was proposed "The Memory of William Murdoch"; "The Guests" was given by the President and was acknowledged by Lieut.-Colonel Sir Arnold Wilson and Herr Muller; Mr. Binnie proposed that of "The Institution of Gas Engineers," its acknowledgment being entrusted to Mr. George Dixon, President-elect.

On resuming business in the afternoon a paper on "The Test Installation of Static Vertical Retorts at Croydon Gas Works" was given by Mr. Walter Grogono, Chief Engineer to the Croydon Gas Company, and Mr. T. Campbell Finlayson, M.Sc., Deputy Technical Director, The Woodall-Duckham Companies, London. In it was described three years' work on an experimental carbonizing plant erected at the Croydon Gas Works, London.

During the period from 1930 to 1935 a number of installations of intermittent vertical chambers were built in England by various constructional firms. In one particular direction intermittent vertical chambers gave room for improvement, and that was in the quenching of the coke by water. Not only did this give rise to large volumes of dust-laden steam, which in certain cases created a nuisance, but also led to an unnecessary loss of heat. Alternative means of effecting coke-cooling naturally came under consideration. Further, during recent years, much attention has been directed to the possibilities of improving the yield of gas from the carbonization of coal by what has been generally become recognized as the controlled cracking of hydrocarbons in the presence of hydrogen. It was realized that if advantages of the intermittent vertical chamber process could be associated with the advantages of the continuous vertical retort process as regards the extraction of cool coke and continuous steaming, an improvement in technique would result. These combined factors led the Woodall-Duckham Company in 1934 to design a new form of carbonizing plant which embodied the essential features of a patent taken out by Sir Arthur Duckham in 1930.

On the coals tested, said Mr. Grogono, the static vertical retort appears to give a higher thermal yield than either intermittent vertical chambers or continuous vertical retorts.

It transpires that at the works of the Southampton Gas Light and Coke Company an installation on the new lines described has been installed by the Chief Engineer Mr. Whitehead. The working results will be awaited with great interest.

General Research Project

The concluding item of Tuesday afternoon's program was an important statement by Mr. Harold Smith, M.Inst.C.E. in the form of a Report on proposals for the conduct of co-operative research in the British Gas Industry. His remarks were followed by a speech by Mr. E. V. Evans, Chairman of the Institution's Research Executive Committee. Mr. Smith explained that it had been decided to form a "Gas Research Board" having the following objects, amongst others:

(a) To promote and finance research and other scientific work in connection with the Gas Industry. (b) To establish

and maintain a Bureau of Information for the benefit of members of the Board. (c) To encourage the discovery of inventions, improvements, processes, materials, and designs which seem capable of being used by members of the Board. (d) To co-operate with, become a member of, or otherwise assist the research work of any association, institution or other body whose objects include scientific or industrial research in connection with or of interest to the Gas Industry. (e) If and when considered desirable, to establish and equip laboratories and to pay research workers whether in such laboratories or elsewhere for the conduct of research. (f) To prepare and issue detailed reports for the confidential use of members of the Board.

Sir David Milne-Watson has consented to become the first President of the Board, and it is intended to appoint a full time Director of Research. One of his first duties will be to set up a Bureau of Scientific and Technical Information. It is not intended that an immediate application should be made to the Department of Scientific and Industrial Research for financial aid. The idea is to prove that the success of the Board is assured before asking for a grant. Practically every Gas Undertaking and the majority of plant and appliance manufacturers will be members of the Board. This was pointed out by Mr. Evans, who, in the course of his remarks said:—

"There will be available for their use and help a Council, a Director, and Bureau of Information. Such an organization, if well administered, will have the effect of enhancing the scientific basis of our Industry. We believe that by maintaining a central organization to investigate problems of a fundamental nature, and by ensuring that the new knowledge thus made available is communicated to members, the undertakings and manufacturers will be better placed to carry out investigations themselves with the object of applying the new knowledge to their own special problems. We hope too, that the offices of the Board may become a central clearing house for those problems which are of too wide a scope to be solved locally, and for observations made in one place that may have a wider sphere of application."

The second Paper read on the opening day of the meeting was by Mr. Noel S. Smith, Distribution Engineer and Sales Manager to the Bristol Gas Company. The subject matter of this Paper referred to the city of Bristol. A striking fact brought out was that at Bristol there is only one showroom, contrary to the general practice throughout the country. In lieu of district showrooms, permanent displays are arranged on traders' premises. For canvassing in Bristol, use has been made of selected fitters but the author explained that, in order to increase the required number, it will be necessary to look elsewhere.

In the evening there was a brilliant gathering at Grosvenor House, Park Lane, for the annual reception and ball, which lasted from nine o'clock when the President and Mrs. Robertson received the members and guests until two next morning. The occasion proved most enjoyable in every way, giving as it did the opportunity for members and their ladies to make and renew acquaintance, in some cases only possible at the annual meeting of the Institution. Dancing to Jack Palmer and his Band caused the time to pass all too quickly.

Next morning punctually at ten o'clock the business of the gathering was resumed the first Paper presented being by Mr. Harold Moore, C.B.E., D.Sc., Director, and Mr. E. A. Liddiard, M.A., Assistant Research Superintendent, British Non-Ferrous Metals Association. They explained in the course of their communication that, apart from corrosion resistance, the individual non-ferrous metals have characteristics favoring their use in particular applications in the Gas Industry, especially in gas distribution and consumption. For example, aluminium, with its high reflectivity and resistance to tarnish, is used as a reflector in some types of gas fires and lights; and, in the form of paint, serves to preserve constant temperature conditions in gasholders. Copper is readily fabricated and bent, has a high thermal conductivity, and is easily tinned. It therefore finds application in the form of pipes which can be readily bent or jointed for the distribution of gas. Copper, tinned on the outside where it comes into contact with burnt gas, is extensively used in the construction of gas water heaters. Lead is chiefly remarkable for its ease of working, in addition to its exceptional resistance to certain forms of corrosion. Nickel, when associated with chromium as an alloying agent in iron, forms a useful series of heat and corrosion-resisting alloys, and is the best undercoating for chromium-plated articles. The low melting-

point of tin makes it useful as a coating material, or, when alloyed with lead in the form of solder, as a jointing material. Zinc base alloys can be readily and cheaply die-cast to form parts of gas-meters, but the main use of zinc is corrosion-resisting as a coating to iron and steel.

The discussion was opened by Mr. S. F. Dunkley who expressed the opinion that in the Gas Industry there is a growing tendency towards replacing certain non-ferrous metals by stainless steel and heat-resisting steel. In the case of appliances and flue pipes which are exposed to heat, products of combustion, and domestic kitchen conditions, vitreous enamel is employed as protection. He suggested that many electro-deposited non-ferrous coats of normal thickness would fail under the combined action of fruit-juices, abrasion, blows, and so on, which the average vitreous enamelled cooker withstands.

Another Paper

After the annual meeting of the contributors to the Institution's Benevolent Fund, which exists to render assistance to members who have fallen by the way, a Paper on "Comfort by Gas Heating" was read by Mr. L. W. Andrew, B.A. and Mr. A. Barron, both of the Gas Light and Coke Company, London. Illustrated by lantern slides the paper dealt with considerations relating to the extent to which gas can economically provide the maximum comfort in domestic and non-domestic premises. Although the temperate climate of Great Britain makes it possible to use an open fire as the main source of heat, this method alone the authors contended does not give the most desirable comfort conditions in one room or in the whole house. Special reference was made to the open coal fire in the living-room. Central heating by hot water using gas as the fuel was considered in the Paper. The intrinsic advantages of gas compared with solid fuel will often lead to its use in private houses, offices, and blocks of flats, but particularly in large installations, for overall annual cost of heating may be the determining factor. In conclusion the authors suggested the introduction of an open gas fire sufficiently attractive in appearance to replace the open coal fire. Such a fire has not previously been available, but is a practical possibility.

Sir Leonard Hill, the well-known expert on such matters, opened the discussion declaring that nose-stuffiness arose from the peculiar effects of radiation, a phenomenon which another speaker, Dr. Thomas Bedford, enlarged upon. As a result of an experiment he said, he had found that any form of heating of the skin might provoke stuffiness of the nose, whether that heating was by radiation, by convection, or by direct induction. Dr. Margaret Fishenden, whose work on the subject has established for her a reputation as an accepted scientific investigator, urged that more thought should be given to the geometrical distribution of heat from a gas fire; and Dr. Harold Hartley, Chief Chemist to Radiation, Ltd., outlined the work of his Company in producing a gas fire with "full radiator" effect, and, employing luminous flames, with complete absence of noise. Dr. H. T. Angus called attention to the contribution which gas lighting makes to heating, referring especially to factory heating.

On Wednesday afternoon there was appropriately a visit to the Luton Works of the Davis Gas Stove Company, where Mr. Cyril Davis, M.I.MECH.E. received the members. Others availed themselves of the opportunity for going over the Osram Lamp and Glass Works of the General Electric Company, Ltd. at Wembley. Here the manufacture of the well-known lamps was seen, all the operations being witnessed. Incidentally it may be remarked that the Company is one of the largest consumers of gas in the area of the Gas Light and Coke Company.

Arrangements much appreciated, were made for the ladies of the members to visit Windsor Castle on Wednesday afternoon, approach being made via Kingston, Hampton Court, Runnymede, Old Windsor, and on the return the route was Windsor Great Park, Ascot Race-course, Virginia Water. The interior of the historic Castle (St. George's Chapel) Albert Memorial Chapel, Round Tower, Curfew Tower, etc., were seen.

On Thursday morning the meeting opened with a Paper by Mr. Cyril M. Croft, M.INST.C.E., Chief Engineer and General Manager, Wandsworth and District Gas Company, on "Installation of Tower Gas Purifiers." He said the reason for the introduction of this large addition to the purifying plant of the works was due to the fact that, following absorption and amalgamation of other neighboring undertakings during the previous ten years, it was

decided to manufacture as much gas as possible at Wandsworth where the works are situated on the banks of the river Thames, and where coals are delivered direct by seagoing colliers. The Paper described in full the details of construction of the plant, capital cost, method of working, and the financial aspects, both from the capital and also the economic view-points. The first considerations which had determined the choice of this type of plant had in practice been fully justified.

The concluding Paper of the meeting was on "By-product Ammonia" and was given by Mr. P. Parrish, F.I.C., Manager, Phoenix Wharf Chemical Works of the South Metropolitan Gas Company. The necessity was mentioned for combining as much ammonia with sulphur as possible. Mr. Parrish said that these minor products of the processing of coal, viz. ammonia and sulphur would be of inestimable value to the country in time of war. They were certainly of economic importance in periods of peace, and their recovery was inevitable in any case. The fact that their production was distributed throughout the country was of notable significance. That Germany attached great importance to the recovery of sulphur was evidenced by the circumstance that that country was enlarging its existing plants to ensure an annual production of 60,000 tons of sulphur from coke-oven gas, despite the fact that the cost of production was known to be more than twice that at which Sicilian or Texas Gulf sulphur could be purchased.

Mr. E. V. Evans in the discussion on Mr. Croft's Paper said he did not know whether it was generally accepted in the Gas Industry that the process of purification by oxide of iron should be operated in such a manner that hydro-cyanic acid was extracted as well as hydrogen sulphide. It was a most corrosive constituent, especially when there was a trace of ammonia in the gas, and its action on copper and brass was very destructive. To perform this double purification process adequately it was necessary that the crude gas should come into contact with iron which had been reduced to the ferrous condition, and that requirement placed some limit upon the variations that might be made in operating details. It was also important that the process should be worked in such a manner that the gas leaving the purifiers was of low oxygen content.

Mr. Chas. F. Botley, M.INST.C.E., Chief Engineer to the Hastings and St. Leonards Gas Company discussing Mr. Parrish's Paper said that at his Company's Glyne Gap Works concentration of liquor had been practiced since the year 1905, and more recently by means of automatic control. It could be confidently recommended even for small works, of which that at North Berwick was an outstanding example. Mr. F. C. O. Speyer in his remarks suggested that a false impression had been made to the general public of the price which gas undertakings were obtaining for sulphate of ammonia, owing to the fact that the price quoted for sulphate of ammonia in the home market included the cost of delivery to station, and Mr. Parrish suggested that all compound fertilizers containing N.P.K. were sold free on rail maker's works. The latter was no longer the case, as a considerable portion of the mixtures marketed by members of the Fertilizer Manufacturers Association were now sold on a delivered basis, and that also applied to the concentrated complete fertilizers marketed by Imperial Chemical Industries, Limited.

To this criticism Mr. Parrish replied that the fact remained that if the season's prices for sulphate of ammonia for the last two years were taken, the gas undertakings should have realized something like £7 9s. per ton, but the amount which had been paid by the British Sulphate of Ammonia Federation to works which were members of that organization was less than £6 per ton. In other words, to sell sulphate of ammonia cost something of the order of 35s. to 37s. 6d. per ton, an expense for which there was no justification.

Closing Events

There then followed the customary vote of thanks in omnibus form to all who had contributed in any way to the success of the meeting, special acknowledgment being made of the services of the Secretary Dr. Brauholtz and his staff, which was cordially received.

Mr. George Dixon as President-elect expressed the members' thanks to the President for all that he had done throughout his year of office for the advancement of the Institution, concluding by asking his acceptance of the Presidential Certificate which is handed to each occupant of the office at the completion of his year.

Mr. Robertson's reply and assurances of continued interest in the progress of the Institution brought the proceedings to a close.

The Council Luncheon to the President in the River Room of the Savoy Hotel then took place, and afterwards there was a visit to the Wandsworth Works of the Wandsworth District Gas Company. This afforded the opportunity for inspection of the intermittent chamber ovens, tower gas purifiers described in Mr. Croft's Paper, ammonia concentration plant, electrostatic de-tarrer, coke-screening plant, and other features of interest. The visitors then went on to the Re-Distribution Station at Worcester Park of the Wandsworth and District Gas Company, after the inspection of which they were entertained at tea by the Chairman and Directors of the Company, at the Wandsworth Town Hall.

The assembly of the members and visitors at the Murdoch Centenary Meeting culminated in a special visit to the Canons Marsh Works of the Bristol Gas Company of which the President, Mr. Robertson, is the Chief Engineer. They travelled from Paddington by special train, and found the tour of the works and the inspection of the magnificent showrooms of the greatest interest. It appears that coal gas as an illuminant was introduced in Bristol as far back as 1811 when Mr. Breillat, a dyer by trade, employed the new method for lighting his shop and a portion of the street in which it was situated; and also gave lectures on the subject. It was not until 1816 that the Bristol Gas Company began operations, the sum of £1,000 having been spent on works and mains, the latter being laid as far as the center of the city. In 1823 a rival company was formed in the Bristol and Clifton Oil Gas Company—for production and supply of "inflammable air or gas" manufactured from oil and any other material (except coal, coke, and other products or residuum of coal). Their works were situated at Canons Marsh (the site of the present gas works) and the price they charged for their gas was 40s. per 1,000 cub. ft.; nevertheless the light was claimed to be four times as brilliant as that from coal gas. The price of oil went up however to such an extent that the Company was unable to pay a dividend. They therefore applied to Parliament for powers to use coal. In 1853 the two Companies amalgamated under the style of "The Bristol United Gas Light Company." The Stapleton Works were erected in 1879 to meet increasing demands for gas while the chief offices were removed from Canons Marsh to Colston Street.

On the invitation of the Chairman and Directors of the Bristol Gas Company luncheon was taken at the Victoria Rooms, congratulatory speeches being made by representatives of the Company and the Institution.

In the afternoon proceeding via Durdham Downs, Clifton Suspension Bridge, Belmont Hill, Flax Bourton, and Conglesbury by road, the Winter Gardens Pavilion at Weston-super-Mare was reached where tea and music by the Municipal Orchestra was enjoyed.

The special train back to London left Weston-super-Mare at 5.30 p.m. arriving at Paddington three hours later, supper being served *en route*. Some of the members elected to remain at the seaside for the week-end to explore further the beauties of the west of England.

Mining Outlook for the Philippines

(Continued from page 430)

I beg to close this address by reading that expressive poem on "Gold" by Thos. Hood:

"Gold! Gold! Gold!

Bright and yellow, hard and cold,
Molten, graven, hammered, rolled;

Heavy to get and light to hold;
Hoarded, bartered, bought, and sold,

Stolen, borrowed, squandered,—doled;

Spurned by the young, but hugged by the old,

To the very verge of the churchyard mould;

Price of many a crime untold;

Gold! Gold! Gold!

Good or bad a thousand fold."

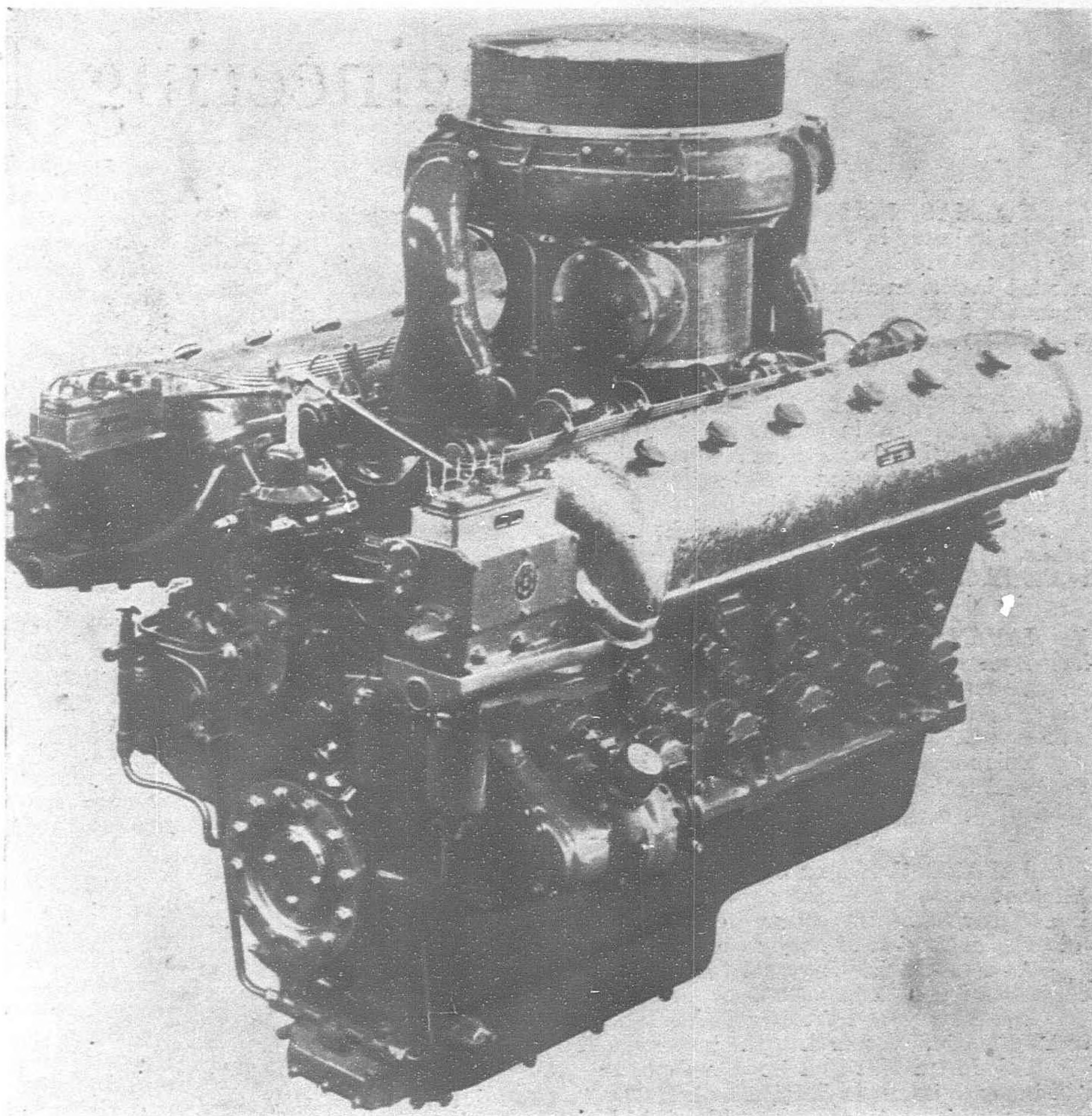
Norwegian Railways Order Three-coach Diesel Speed Trains

ANNOUNCEMENT has been made from the offices of Messrs. Maybach-Motorenbau of Friedrichshafen that the Administration of the Norwegian State Railways has decided to acquire a number of three-coach Diesel speed trains for rapid passenger traffic over the Oslo-Bergen line. This decision follows tests that were made at the close of 1938 with Diesel equipped railway coaches that were borrowed from the Danish railways. These tests were made from Oslo to Bergen, Trondheim and Kristiansand and attracted much interest from the Scandinavian public.

The Oslo-Bergen line for which the new equipment is specially designed is known as one of the most difficult in all Europe. In heavy gradients and curves it is perhaps surpassed only by the electrified alpine railways. This is to be seen from the accompanying sectional profile of the line, which shows differences of altitude of 1,300 meters (4,330 feet). The line has a total length of 492 kilometers (306 miles), and presents major engineering difficulties. Among others, in one direction, over a section of 100 kilometers (62 miles), is a practically continuous gradient of from 10 per cent to 20 per cent, and, in another direction over a section of 73 kilometers (45.4 miles), gradients of from 16 per cent to 21.5 per cent.

In view of the circumstance that railways under such conditions usually are electrified, especially where low-price water power is available, as in Norway, acute attention in railway circles was centered on the tests and on the subsequent decision of the Administration of the Norwegian State Railways. It was realized that the purpose to motorize the passenger traffic over this section would mark a new development for the acceleration of traffic over lines with numerous gradients. As the gradient conditions in this particular case impose high stresses on engine plants of rail cars, the decision of the Norway State Railways regarding choice of driving engines was awaited with particular interest. It was evident that the Norwegian State Railways would require for this heavy traffic an engine proved by experience in continuous service. The well-established 12-cylinder 450 h.p. Maybach railcar Diesel engine and its supercharged 650 h.p. type was deemed to meet all demands, as this equipment is employed on no less than 365 engines in service on the German State Railways and by other European railways.

In view of this installation of two supercharged 650 h.p. Maybach railcar Diesel engines in each of four three-coach Diesel



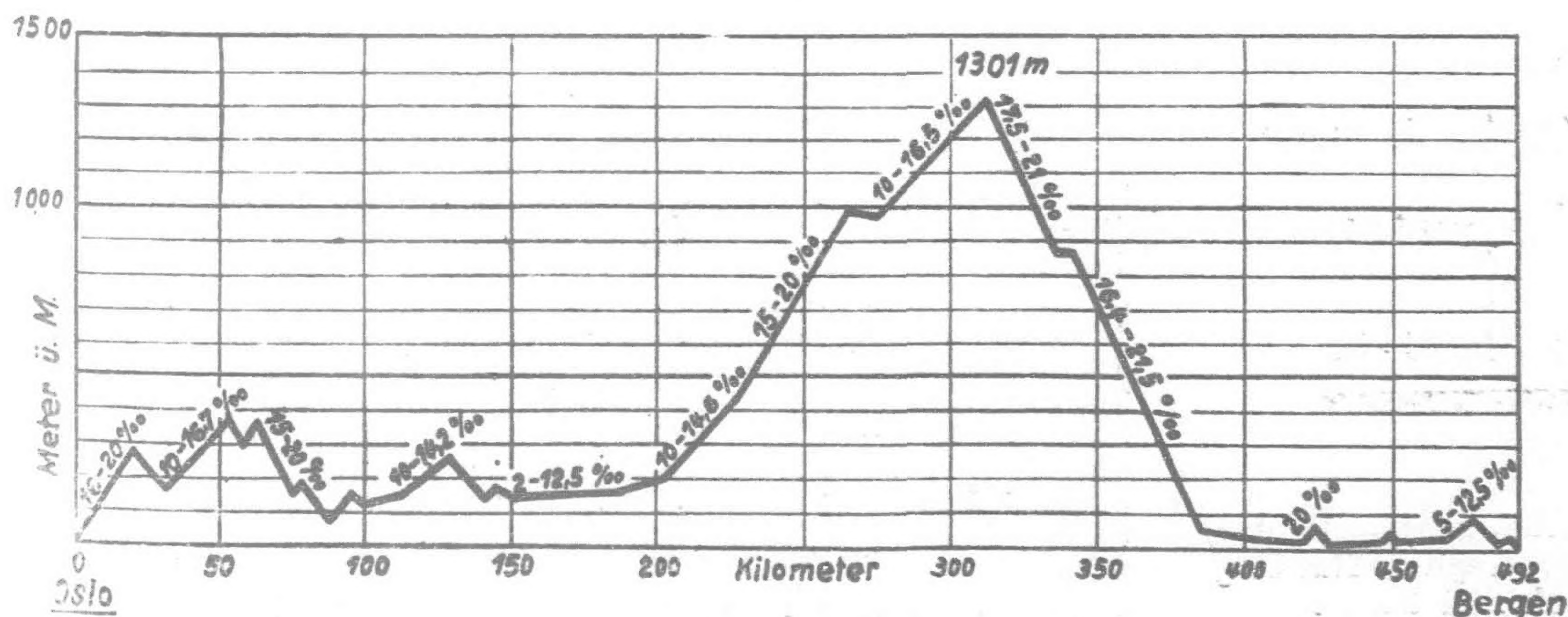
The celebrated Maybach railcar Diesel engine

hydraulic speed railcars was determined upon. Including engine equipment for a spare bogie the Norwegian coach builders, A/S Strommens Vaerksted, of Strommens, near Oslo, who are in charge of the construction of the vehicles, ordered from Maybach nine engines of this type.

These engines with their hydraulic transmission will be installed in the two end bogies of the railcars. In view of conditions on the line, maximum speed was restricted to 120 kilometers (75 miles). In order to obtain the greatest possible specific motor power (h.p. per ton), which is completely essential with regard to the heavy gradients to be overcome, methods of light structure will be followed to a great extent. These vehicles will provide the greatest degree of travelling comfort. By putting into service these railcars a considerable reduction in travelling time will be achieved on the Oslo-Bergen line. While the regular express trains now in service require from 11 to 12 hours over this line, the fast railcars will cover the distance in about seven hours.

In the production of railcar engines the Maybach record is notable. With sixty-three 650 h.p. engines for the five-coach

Diesel railcars of the Netherlands State Railway and 95 engines of the 1939 purchasing program of the German State Railways, Maybach have actually under construction no less than 165 Diesel railcar engines of 650 h.p. In addition, a great number of the 250 h.p. six cylinder type and the 12 cylinder 450 h.p. type without supercharging are being manufactured. The number of Maybach railcar Diesel engines supplied up to this time and under construction on orders received now totals 810 engines, with an aggregate total output of 340,000 h.p.



Sectional profile of the Oslo-Bergen line

Engineering Notes

INDUSTRIAL

FORMALIN SHORTAGE.—Due to the continued expansion of the plastics industry in Japan, a shortage of formalin is threatened. In view of the fact that reliance has been placed on plastics as substitutes for materials needed in the munitions industry, this is considered serious, as formalin cannot be imported in substantial quantities because of exchange restrictions, and with a shortage of domestic methanol, domestic production is limited.

CHINESE TEXTILES.—New cotton textile mills in Yunnan and Szechuen will place in operation, when completed, 500,000 spindles and 5,000 looms, according to the press. Chungking newspapers also report that out of 60 cotton mills owned by Chinese and operating in China prior to hostilities, 10 have been completely destroyed by military operations, 12 were badly damaged, 21 slightly damaged, eight mortgaged or sold to foreign enterprises, and the remaining nine mills were confiscated by the Japanese military authorities.

JAPANESE METALS.—The Japanese Commerce and Industry Ministry has promulgated regulations in the *Official Gazette* concerning restrictions on the enlargement of the production capacity and establishment of new plants by medium and small iron manufacturing companies. The regulations will go into effect on August 10.

This move of the Government is interpreted as meaning that it intends to concentrate iron and steel manufacturing in large plants, which are more efficient than the small outfits.

JAPANESE INDUSTRIES.—The capital adjustment bureau of the Bank of Japan has recently granted approval to 70 requests for the founding of new firms, the calling in of unpaid shares, increase of capitalization and the expansion of equipment, says Domei.

As a result the Ube Coal Liquefaction Company will be set up with a capitalization of ¥50,000,000, a fourth paid up.

The Sanyo Steel Works will increase its capitalization from ¥2,000,000 to ¥4,000,000. A fourth of the increase will be paid up.

The Japan Nitrogen Powder Company, now capitalized at ¥1,500,000, will increase its capitalization to ¥7,000,000, entirely paid up.

The Okinoyama Colliery will call in ¥1,300,000 worth of unpaid shares, the Shinohara Colliery ¥1,000,000 and the Wakayama Iron Works in Osaka, ¥1,500,000.

HIGHER GOLD PRICE.—To prevent the export of gold to foreign countries and also to encourage the increased output of gold, the Manchoukuo government recently decided to give a subsidy of about Manchoukuo \$1 per gram of newly mined gold, in addition to the "encouragement money" which has been given in the past to gold mine operators thus virtually raising the purchase price of gold by the Manchoukuo government.

TIENTSIN TRADE.—Total exports from Tientsin to the United States as declared to the U.S. Consulate-General at Tientsin in July were valued at U.S.\$791,000, and despite the Tientsin blockade failed to show any substantial reduction as compared with the month before.

Almost half of these Tientsin exports to the United States consisted of 337,000 lbs. of bristles, valued at U.S.\$356,000. Other major Tientsin exports to U.S.A. were U.S.\$110,000 worth of furs and skins; U.S.\$174,000 worth of woollen carpets; U.S.\$60,000 worth of their hair and hair products; as well as U.S.\$51,000 worth of egg products.

NEW DEVELOPMENT FIRM.—A meeting of the board of directors of the semi-official North China Development Company, recently held in Peiping, has decided to revise the company's regulations drastically, according to the *Osaka Mainichi*.

In revising the regulations, more importance will be attached to the conditions in North China. It was agreed that necessary investigation and drafting of plans for various enterprises should be done by authorities on the spot and not by those in Tokyo, which would naturally delay the execution of plans needing urgent action.

ORDER FOR PHONOGRAPHS.—The Radio Corporation of America has ordered 10,000 phonographs from the Victor Talking Machine Company of Japan, reports the *Chugai Shogyo*. It is thought that the American concern will distribute these phonographs through Argentina, Brazil, Chile, the South Sea Islands and southeastern Asia including the Philippines, where imports from Germany have been interrupted by the war in Europe.

Since there are not sufficient materials within Japan to manufacture the machines, the local company expects to negotiate with the Commerce and Industry Minister to secure foreign currency to buy the necessary materials abroad, and with the Exports Promotion Corporation of Yokohama for the actual ordering of the materials abroad.

MINING

PLAN MINE TRANSFER.—The Peking Syndicate and the Peiping "Provisional Government" have entered into negotiations concerning the transfer of the Tsiaotso (Chiaotso) coal mines in Honan from the Syndicate to the Peiping "government," the Japanese-sponsored *Chen Pao* reports.

The Tsiaotso mines were seized by the so-called "Honan Provincial Government," which is a subsidiary of the Peiping "Provisional Government."

SUNGYEN MINES.—According to Japanese press reports upon the occupied areas, the Japanese-sponsored Mengchiang Government at Kalgan has declared that the Lungyen Iron Mines are to be operated exclusively by the Kalgan Regime, which has declined co-operative activities with the North China Development Co. The Japanese-operated Mentoukuo Coal Mines, near Peiping, produced 45,000 tons of coal in May compared with a monthly average of 30,000 tons during the first four months of the year.

CHINESE TUNGSTEN.—China, in 1938, exported 133,577 quintals of tungsten, valued at \$50,500,000, according to *Fortnightly*, a publication of the Foreign Trade Commission of the Ministry of Finance.

Over 90 per cent of the tungsten exports last year, it is stated, passed through Hongkong.

Exports to Germany dropped sharply, while France took 1,000 quintals and Britain and the United States each 750 quintals.

MINERAL MONOPOLY.—Capitalized at ¥10,000,000, a joint Japanese-Mongolian company will be established by September 4 to engage in the sales of the output of the Tatung coal and the Lungyuen iron mines, Domei reports. Named the Mongolian Commercial Company, Ltd., the firm will have a monopoly over the sales of those mineral products. Half the capital will be subscribed by the Federated Mongolian Autonomous Commission, while the other half will be provided by the Japanese North China Development Company. The company's initial paid-up capital will be ¥2,500,000.

GOLD MINE SOLD.—The Japan Mining Company of Tokyo has purchased the famous Unzan gold mine in North Heian Province, Korea, from the Oriental Consolidated Mining Company of New York, terminating all gold operations by Americans in Korea, according to Domei.

Because the operation and management of gold mines in Japanese territory by foreigners were considered disadvantageous to this country's gold policy, the Korean Government-General reportedly induced the Japan Mining Company, the largest gold mining firm in this country, to negotiate with the American concern for the purchase of the Unzan mine.

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